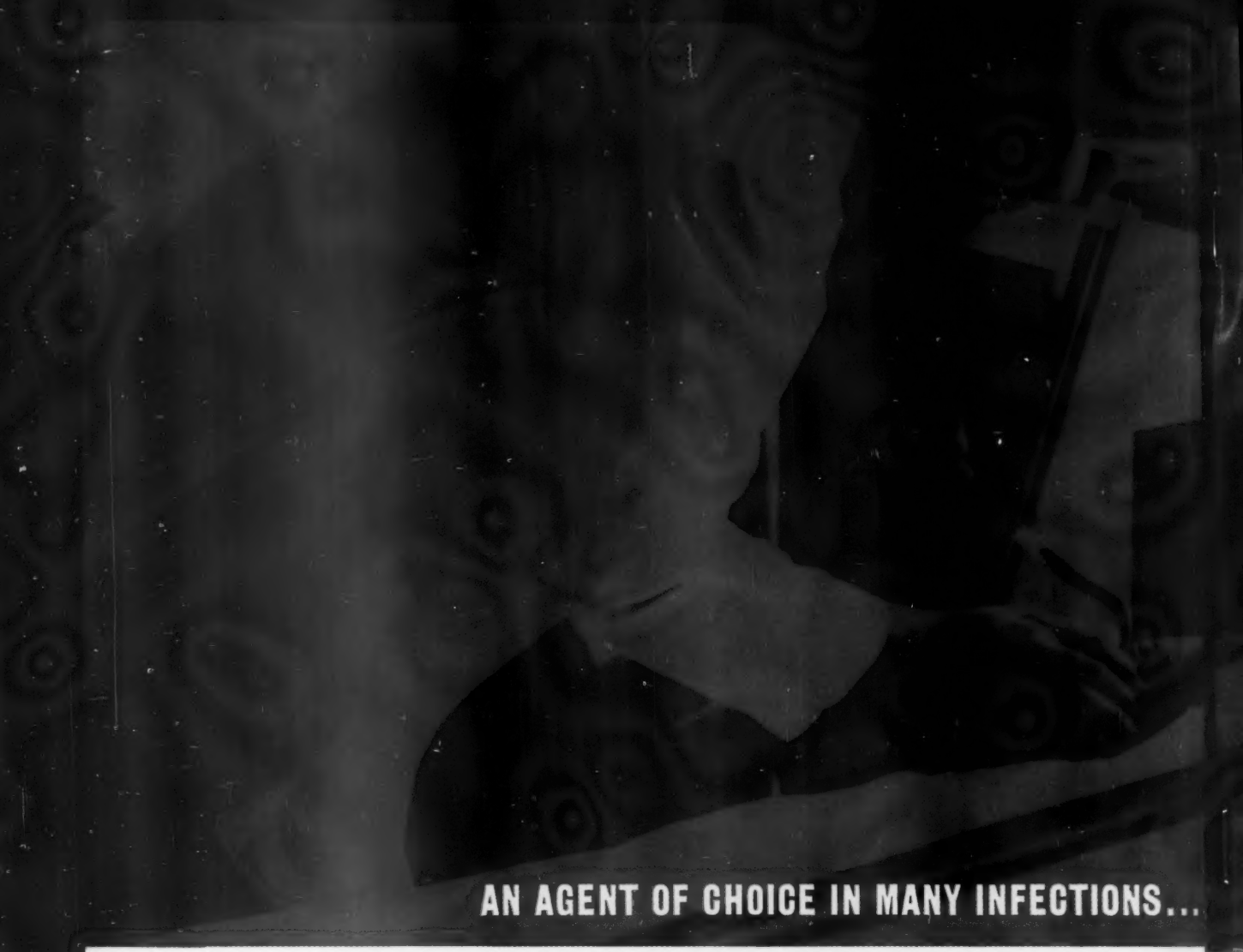
OFFICIAL PUBLICATION OF THE MEDICAL SOCIETY OF VIRGINIA

VIRGINIA MEDICAL MONTHLY

THE MEDICAL SOCIETY OF VIRGINIA
ÆSCULAPIUS
FOUNDED 1820

NOVEMBER, 1959



AN AGENT OF CHOICE IN MANY INFECTIONS...

CHLOROMYCETIN®

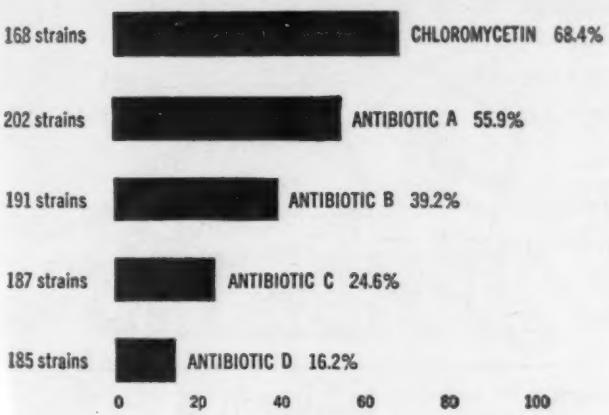
"In selecting the antibiotic of choice for treating urinary pathogens, *in vitro* testing is essential."[1] Numerous studies[2-9] attest the wide antibacterial activity of CHLOROMYCETIN—"...often effective against organisms which are resistant to the other broad-spectrum antibiotics."[3] For example: "...it often provides a means of controlling infections due to such resistant organisms as *Proteus*."[3] "*B. proteus* exhibits a greater sensitivity to chloramphenicol than to other antibiotics," according to one investigator.[4] Another reported: "*Proteus* bacilli are often drug resistant, but significant activity against them is exhibited by chloramphenicol...."[5] In the latter study, CHLOROMYCETIN "...showed the greatest activity among the agents tested against *E. coli, A. aerogenes,* and *Proteus* species."[5]

CHLOROMYCETIN (chloramphenicol, Parke-Davis) is available in a variety of forms, including Kapseals® of 250 mg., in bottles of 16 and 100.

CHLOROMYCETIN is a potent therapeutic agent and, because certain blood dyscrasias have been associated with its administration, it should not be used indiscriminately or for minor infections. Furthermore, as with certain other drugs, adequate blood studies should be made when the patient requires prolonged or intermittent therapy.

REFERENCES: (1) Holloway, W. J., & Scott, E. G.: *Delaware M. J.* 29:159, 1957. (2) Suter, L. S., & Ulrich, E. W.: *Antibiotics & Chemother.* 9:38, 1959. (3) Murphy, J. J., & Rattner, W. H.: *J.A.M.A.* 166:616, 1958. (4) Rhoads, P. S.: *Postgrad. Med.* 21:563, 1957. (5) Horton, B. F., & Knight, V.: *J. Tennessee M. A.* 48:367, 1955. (6) Seneca, H.: *Am. Pract. & Digest Treat.* 10:622, 1959. (7) Hall, W. H.: *M. Clin. North America* 43:191, 1959. (8) Seneca, H., *et al.*: *J. Urol.* 81:324, 1959. (9) Wolfsohn, A. W.: *Connecticut Med.* 22:769, 1958.

IN VITRO SENSITIVITY OF PROTEUS SPECIES TO CHLOROMYCETIN AND TO FOUR OTHER ANTIBIOTICS*



*Adapted from Suter & Ulrich.[3]
These antibiotics were tested by the tube dilution method, using a concentration of 12.5 mcg/ml. The percentages represent the total number of sensitive strains found in five *Proteus* species.

PARKE, DAVIS & COMPANY • DETROIT 32, MICHIGAN

VIRGINIA MEDICAL MONTHLY

(Founded by Landon B. Edwards, M. D., April 1874)

PUBLISHED MONTHLY BY THE MEDICAL SOCIETY OF VIRGINIA

4205 DOVER ROAD, RICHMOND 21, VIRGINIA

EDITORIAL BOARD

HARRY J. WARTHEN, M.D.
Chairman and Editor

WYNDHAM B. BLANTON, M.D.

ENNION S. WILLIAMS, M.D.

LEWIS H. BOSHER, JR., M.D.

E. CATO DRASH, M.D.

HUGH H. TROUT, JR., M.D.

JAMES L. HAMNER, M.D.

C. V. CIMMINO, M.D.

JULIAN R. BECKWITH, M.D.

ROBERT L. PAYNE, JR., M.D.

E. SPENCER WATKINS
Managing Editor
4205 Dover Road
Richmond 21, Virginia

Annual Subscription—$2.00
Single Copies—25¢

TABLE OF CONTENTS

GUEST EDITORIAL
Insect Sting and Bite Reactions—*J. Warrick Thomas, M.D.* 617

ORIGINAL ARTICLES
Socio-Economic Problems—*Walter P. Adams, M.D.* 620
Cancer of the Laryngo-Pharynx—*William R. Nelson, M.D.* 624
Experience with Long-Term Anticoagulation—*Frank E. Taylor, M.D., Charles L. Crockett, Jr., M.D.,* and *R. Early Glendy, M.D.* 630
The Surgical Aspects of Tumors in Infants and Children—*Edwin Ide Smith, M.D.* 633
The Biological and Medical Significance of Copper—*Galen L. Wampler, M.D.* 640
Alpha Chymotrypsin in Cataract Surgery—*Elbyrne G. Gill, M.D.* 650
Complete A-V Block in Acute Rheumatic Fever—*Sidney A. Tyroler, M.D.,* and *Joseph Beinstein, M.D.* 652
Annular Pancreas in a Three-Day Old Child—*Webster P. Barnes, M.D.* 655
The Addition to Our Armamentarium of the "Fruit of the Spirit"—*Harold W. Miller, M.D.* 657

PUBLIC HEALTH
Some Broader Aspects of Medical Practice 660

MENTAL HEALTH
Psychiatric Nursing Experience for Nursing Students Inaugurated at Western State Hospital 663

PRE-PAID MEDICAL CARE
Group Health Association 666

MISCELLANEOUS
A New Epidemiological Study of Cancer 667

BOOK ANNOUNCEMENTS 669

WOMAN'S AUXILIARY 671

EDITORIAL
New President—W. Allen Barker—*Charles H. Peterson, M.D.* 673

SOCIETY ACTIVITIES 675

NEWS NOTES 675

OBITUARIES 678

The MONTHLY is not responsible for the opinions and statements of its contributors.
All advertisements are accepted subject to the approval of the Editorial Board.

Second Class Postage paid at Richmond, Virginia

INDEX TO ADVERTISERS—Page 110

NOW many more hypertensive patients may have THE FULL BENEFITS OF CORTICOSTEROID THERAPY

Except for one case of mild blood-pressure elevation (150/90) **no hypertension was seen in any of 1500 patients†** as a result of treatment with DECADRON—the new and, on a milligram basis, most potent of all corticosteroids. **Hypertension induced by other steroids diminished or disappeared.**

Thus with DECADRON, hypertension no longer appears to be a contraindication to successful corticosteroid therapy. And the dramatic therapeutic impact of DECADRON was virtually unmarred by diabetogenic or psychic reactions . . . Cushingoid effects were fewer and milder . . . and there were no new or "peculiar" side effects. Moreover, DECADRON helped restore a "natural" sense of well-being.

†Analysis of clinical reports.

Decadron®

DEXAMETHASONE

treats more patients more effectively

®DECADRON is a trademark of Merck & Co., Inc. ©1959 Merck & Co., Inc.

MERCK SHARP & DOHME
DIVISION OF MERCK & CO., Inc., PHILADELPHIA 1, PA.

OFFICERS AND COUNCILORS OF THE MEDICAL SOCIETY OF VIRGINIA FOR 1959-1960

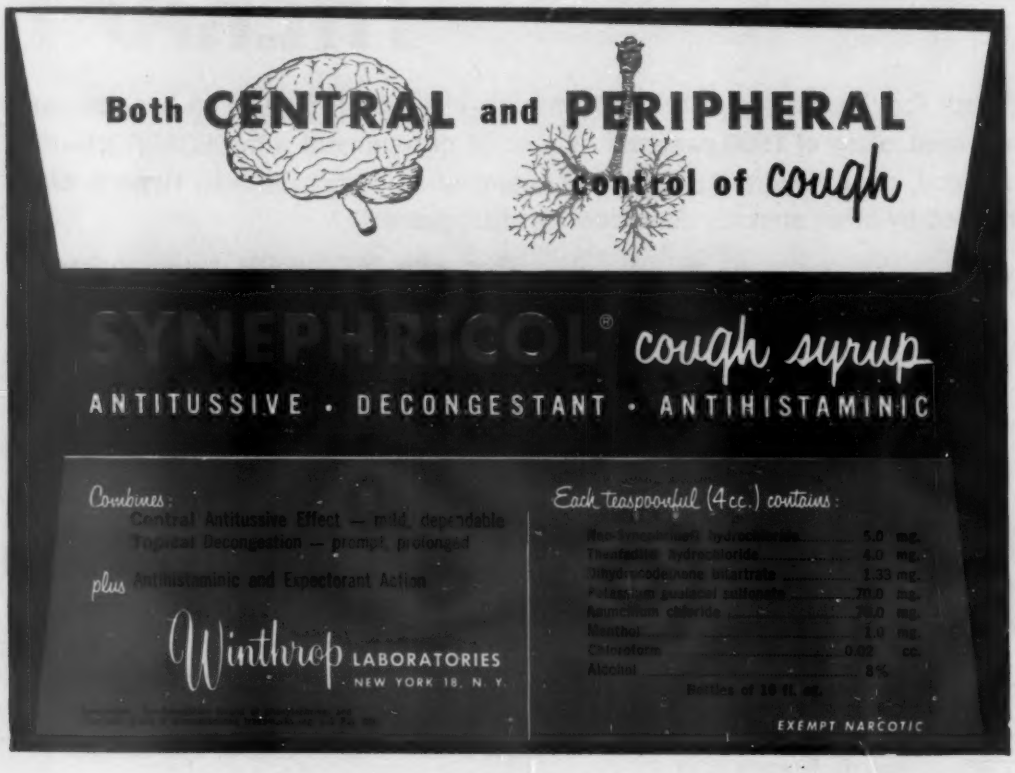
President—Allen Barker, M.D., Roanoke
President-Elect—Guy W. Horsley, M.D., Richmond
Past-President—Walter P. Adams, M.D., Norfolk
Vice-Presidents—Robert S. Hutcheson, Jr., M.D., Roanoke
Russell Buxton, M.D., Newport News
Mallory S. Andrews, M.D., Norfolk
Executive Secretary—
Treasurer—Robert I. Howard, Richmond
Editor, Virginia Medical Monthly: Harry J. Warthen, M.D., Richmond
State Health Commissioner—Mack I. Shanholtz, M.D., Richmond
Speaker of the House—John T. T. Hundley, M.D., Lynchburg
Vice-Speaker—Fletcher J. Wright, Jr., M.D., Petersburg

COUNCILORS

Paul Hogg, M.D., Newport News
K. K. Wallace, M.D., Norfolk
Thomas W. Murrell, Jr., M.D., Richmond
Fletcher J. Wright, M.D., Petersburg
William N. Thompson, M.D., Stuart
Alexander McCausland, M.D., Roanoke
Dennis P. McCarty, M.D., Front Royal
Byrd S. Leavell, M.D., Charlottesville
W. Frederic W. Delp, M.D., Pulaski
Richard E. Palmer, M.D., Alexandria

DELEGATES AND ALTERNATES TO AMERICAN MEDICAL ASSOCIATION

Delegates	*Alternates*
1959-1960	1959-1960
V. W. Archer, M.D., Charlottesville	M. H. Harris, M.D., West Point
1960-1961	1960-1961
W. Linwood Ball, M.D., Richmond	W. Callier Salley, M.D., Norfolk
Allen Barker, M.D., Roanoke	Russell Buxton, M.D., Newport News



NEW UNEXCELLED TASTE ✻

✻Raldrate®

SYRUP OF CHLORAL HYDRATE

NEW RALDRATE NOW SOLVES THE PROBLEM OF TASTE RESISTANCE TO CHLORAL-HYDRATE

10 Grains (U.S.P. Dose) of palatable lime flavored chloral-hydrate syrup in each teaspoonful

RAPID SEDATION WITHOUT HANGOVER

JONES and VAUGHAN, Inc. RICHMOND 26, VA.

J. and V.

MORE
HIGHLY INDIVIDUALIZED
THERAPY
FOR THE
RHEUMATIC
"IN-BETWEEN"

when the rheumatic disorder is more **than salicylates alone can control...**

...but control **requires less** than intensive steroid therapy alone

Aristo

...but
ontrol
es less
than
ensive
ierapy
alone

wider latitude in adjusting dosage

ARISTOGESIC is particularly effective for relief of chronic — but less severe — pain of rheumatic origin. ARISTOGESIC combines the anti-inflammatory effects of ARISTOCORT® Triamcinolone with the analgesic action of salicylamide, a highly potent salicylate. Dosage requirements for ARISTOGESIC are substantially lower than generally required for each agent alone. The exceptionally wide latitude of dosage adjustment with ARISTOGESIC permits well-tolerated therapy for long periods of time with fewer side effects.

Indications: **Mild cases of rheumatoid arthritis, tenosynovitis, synovitis, bursitis, mild spondylitis, myositis, fibrositis, neuritis, and certain muscular strains.**

Dosage: **Average initial dosage: 2 capsules 3 or 4 times daily. Maintenance dosage to be adjusted according to response.**

Precautions: **All precautions and contraindications traditional to corticosteroid therapy should be observed. The amount of drug used should be carefully adjusted to the lowest dosage which will suppress symptoms. Discontinuance of therapy must be carried out gradually after patients have been on steroids for prolonged periods.**

Each ARISTOGESIC Capsule contains:

ARISTOCORT® Triamcinolone	**0.5 mg.**
Salicylamide	**325 mg.**
Dried Aluminum Hydroxide Gel	**75 mg.**
Ascorbic Acid	**20 mg.**

Supply: **Bottles of 100 and 1,000.**

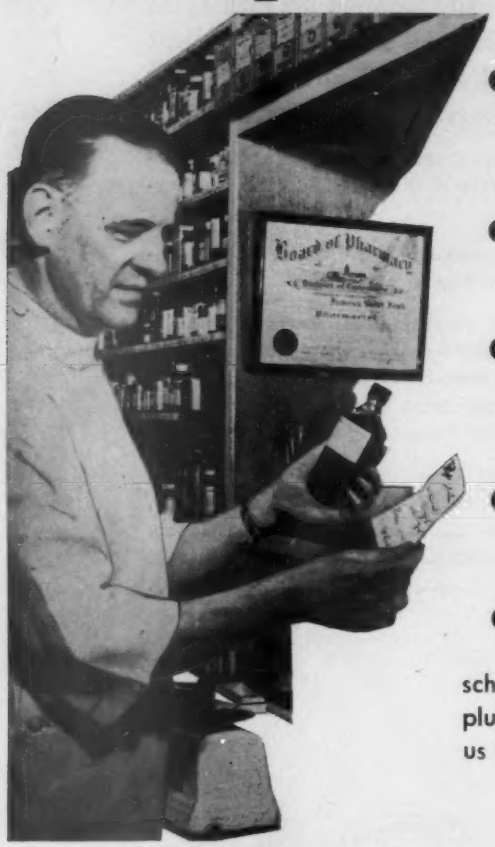
ogesic® Capsules

Steroid-Analgesic Compound LEDERLE

Lederle

LEDERLE LABORATORIES, A Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

What your Patients can Expect from
PEOPLES DRUG STORES
Prescription Departments—



- Complete, up-to-date stock of the most modern drugs, as well as all the older drugs now being prescribed.
- Only fresh, high-quality drugs are used in filling their prescriptions.
- Every prescription is checked, not once, but twice, to assure the utmost in accuracy and safety.
- They can rest assured that their prescription is filled exactly as the physician prescribes.
- They always pay a fair price for prescriptions at Peoples, because of the unique price schedule in use in all of our stores. Volume buying, plus this up-to-the-minute price schedule, often enable us to pass along substantial savings to your patients.

OPEN

24 Hours a Day

RICHMOND, VIRGINIA

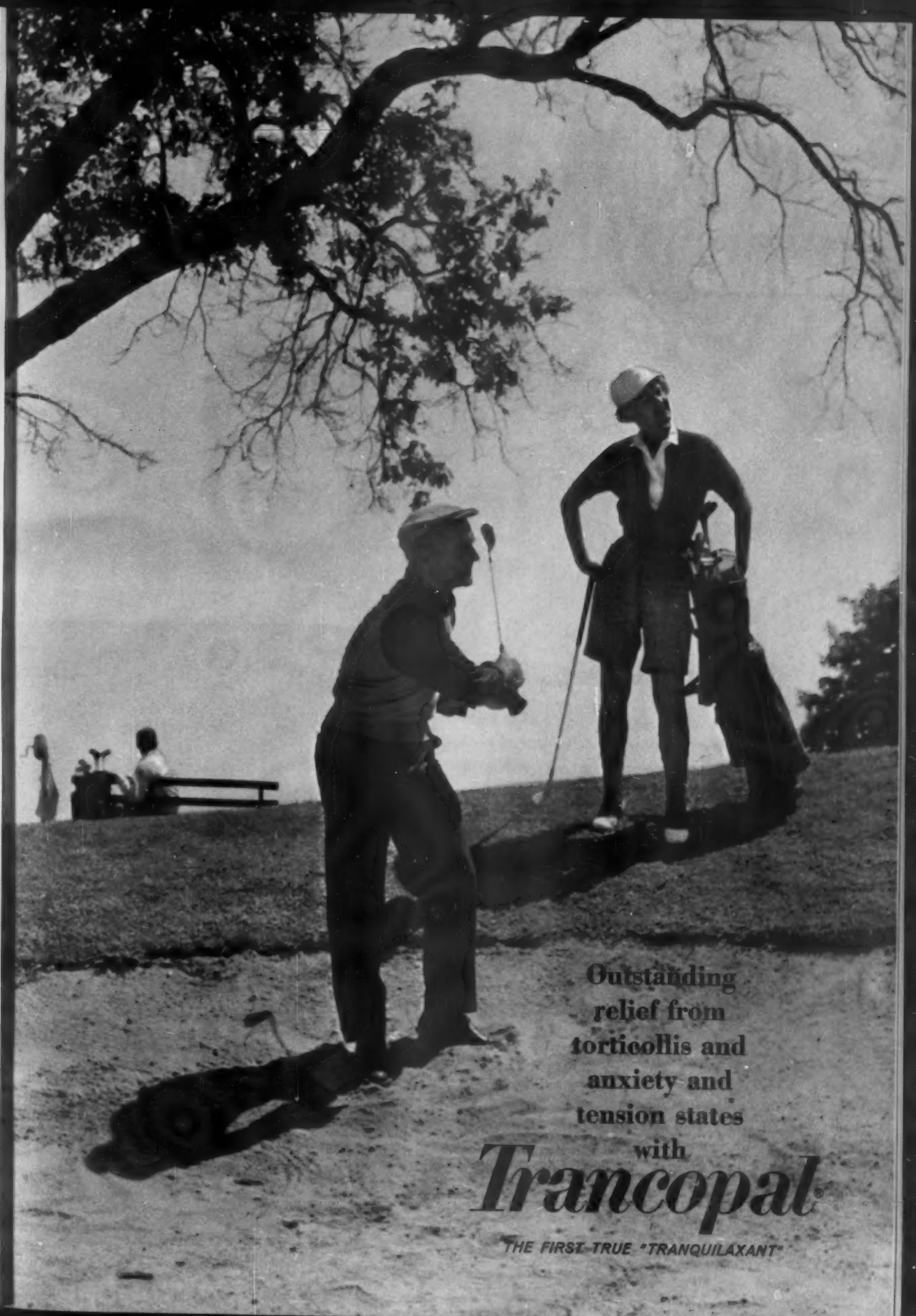
Boulevard and Broad Streets

EL 9-2497

LOW PRICES

PEOPLES SERVICE DRUG STORES

PRESCRIPTIONS


Outstanding
relief from
torticollis and
anxiety and
tension states
with
Trancopal
THE FIRST TRUE "TRANQUILAXANT"

Here is what you can expect when you prescribe

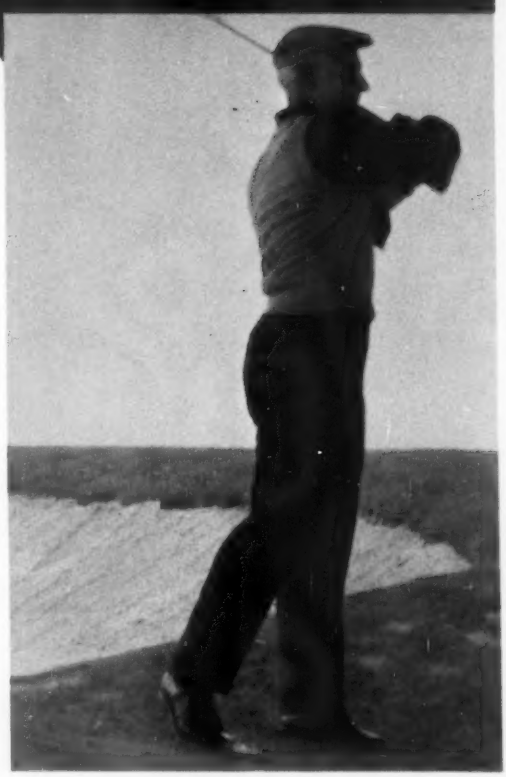
case profile no. 2840*

A 55-year-old man complained of a painful, very stiff neck on the left side. There was marked muscle spasm that seemed to involve primarily the trapezius muscle. He had a severe headache, with the pain radiating down the left side of the neck to the shoulder. There were no other findings on physical examination and results of routine laboratory tests were normal.

Trancopal was prescribed in a dosage of 200 mg. q.i.d. The first and second dose of Trancopal gave only moderate relief. However, after the third dose, there was marked relief of the stiffness of the neck, as well as the headache and shoulder pain.

After the fourth dose, medication was gradually decreased and was discontinued on the sixth day. One week later, the patient had moderate recurrence of the torticollis, and Trancopal was again prescribed in doses of 200 mg. q.i.d. The patient obtained complete relief in one day and no further treatment was required.

for torticollis



THE FIRST TRUE "TRANQUILAXANT"

Trancopal®

for anxiety and tension states

case profile no. 3382*

A 35-year-old woman, a professional model, had an acute, severe attack of anxiety. She was irrational and unable to eat, and was very restless.

Initial medication consisted of aspirin with codeine and later meprobamate. Neither was effective, and the patient's condition became worse. She had to be hospitalized because of the marked anxiety. Trancopal was then prescribed in a dosage of 200 mg. q.i.d., in addition to bed rest.

After the second dose of 200 mg. of Trancopal, the patient became calm and rational, and was able to eat. The dosage of Trancopal was gradually reduced to 100 mg. q.i.d. on the fourth hospital day, after which the patient was discharged and was able to return to her normal occupation.

**Clinical Reports on file at the Department of Medical Research, Winthrop Laboratories.*

Turn page for complete listings of Indications and Dosage.

THE FIRST TRUE "TRANQUILAXANT"

Trancopal

potent MUSCLE RELAXANT
effective TRANQUILIZER

Indications:

Musculoskeletal[1]	Psychogenic[1]
Neck pain (torticollis, etc.)	Anxiety and tension states
Low back pain (lumbago, etc.)	Dysmenorrhea
Bursitis	Premenstrual tension
Rheumatoid arthritis	Asthma
Osteoarthritis	Angina pectoris
Disc syndrome	Alcoholism
Fibrositis	
Ankle sprain, tennis elbow, etc.	
Myositis	
Postoperative muscle spasm	

Dosage: Adults, 100 or 200 mg. orally three or four times daily. Relief of symptoms occurs in fifteen to thirty minutes and lasts from four to six hours. The higher dosage is recommended for the treatment of patients in the acute stages of painful musculospastic conditions, and anxiety and tension states. Children (5 to 12 yrs.), 50 mg. three or four times daily.

Supply:

Trancopal Caplets®

100 mg. (peach colored, scored), bottles of 100.

New strength ▶

Trancopal Caplets

200 mg. (green colored, scored), bottles of 100.

"Chlormethazanone [Trancopal] not only relieved painful muscle spasm, but allowed the patients to resume their normal activities with no interference in performance of either manual or intellectual tasks."[2]

"The effect of this preparation in these cases [skeletal muscle spasm] was excellent and prompt . . ."[3]

". . . Trancopal is a most valuable drug for relieving tension, apprehension and various psychogenic states."[4]

1. Collective Study, Department of Medical Research, Winthrop Laboratories.
2. Lichtman, A. L. (N.Y. Polyclinic M. Sch. & Hosp.): Kentucky Acad. Gen. Pract. J. 4:28, Oct., 1958.
3. Mullin, W. G., and Epifano, Leonard (Long Island College Hosp.): Am. Pract. & Digest Treat. To be published.
4. Ganz, S. E. (New York, N. Y.): J. Indiana M. A. 52:1134, July, 1959.

Winthrop **LABORATORIES**
New York 18, New York

Trancopal (brand of chlormezanone) and Caplets, trademarks reg. U.S. Pat. Off. Printed in U.S.A. 9-59 (1400M)

For the Best Years of Their Lives

NICOZOL® COMPLEX

ORIGINAL FORMULA

Ideal New Geriatric Tonic Stimulant

NICOZOL COMPLEX is a cerebral stimulant-tonic and dietary supplement intended for geriatric use. Improves mental and physical well-being. Improves protein and calcium metabolism. Indicated during convalescence, also as a preventive agent in common degenerative changes.

Dosage:

1 teaspoonful (5 cc) 3 times a day, preferably before meals. Female patients should follow each 21-day course with a 7-day rest interval.

Supply:

NICOZOL COMPLEX is available as a pleasant-tasting elixir. Popularly priced. Bottles of 1 pint and 1 gallon.

Formula

Each 15 cc (3 teaspoonfuls) contains:

Pentylenetetrazol	150 mg.
Niacin	75 mg.
Methyl Testosterone	2.5 mg.
Ethinyl Estradiol	0.02 mg.
Thiamine Hydrochloride	6 mg.
Riboflavin	3 mg.
Pyridoxine Hydrochloride	6 mg.
Vitamin B-12	2 mcg.
Folic Acid	0.33 mg.
Panthenol	5 mg.
Choline Bitartrate	20 mg.
Inositol	15 mg.
1-Lysine Monohydrochloride	100 mg.
Vitamin E (a-Tocopherol Acetate)	3 mg.
Iron (as Ferric Pyrophosphate)	15 mg.
Trace Minerals as: Iodine 0.05 mg., Magnesium 2 mg., Manganese 1 mg., Cobalt 0.1 mg., Zinc 1 mg.	

Contains 15% Alcohol

Write for professional sample and literature.

DRUG Specialties INC.

WINSTON-SALEM 1, NORTH CAROLINA

Now—All cold symptoms can be controlled

Tussagesic

timed-release tablets

Controls congestion
with Triaminic,[1,2,3] the leading oral nasal decongestant.

Controls aches and fever
with well-tolerated APAP, non-addictive analgetic[4] and excellent antipyretic.[5]

Each TUSSAGESIC Tablet provides:

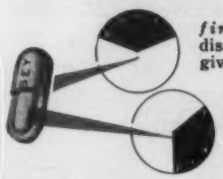
TRIAMINIC®	50 mg.
(phenylpropanolamine HCl	25 mg.
pheniramine maleate	12.5 mg.
pyrilamine maleate	12.5 mg.)
Dormethan (brand of dextromethorphan HBr)	30 mg.
Terpin hydrate	180 mg.
APAP (N-acetyl-p-aminophenol)	325 mg.

References: 1. Lhotka, F. M.: Illinois M. J. 112:259 (Dec.) 1957. 2. Fabricant, N. D.: E.E.N.T. Monthly 37:460 (July) 1958. 3. Farmer, D. F.: Clin. Med. 5:1183 (Sept.) 1958. 4. Bonica, J. J.: in Drugs of Choice, Mosby, St. Louis, 1958, p. 272. 5. Dascomb, H. E.: in Current Therapy, Saunders, Phila., 1958, p.78. 6. Bickerman, H. A.: in Drugs of Choice, Mosby, St. Louis, 1958, p.547.

Controls cough centrally
with non-narcotic Dormethan, possessing "amply demonstrated" antitussive activity,[6] as effective as codeine.

Liquefies tenacious mucus
with terpin hydrate, classic expectorant.

Prompt and prolonged relief because of this special "timed release" design:



first—the outer layer dissolves within minutes to give 3 to 4 hours of relief

then—the inner core releases its ingredients to sustain relief for 3 to 4 more hours

Dosage: One tablet in the morning, midafternoon and at bedtime. Pediatric dosage chart for Tussagesic Suspension available on request.

TUSSAGESIC SUSPENSION provides palatability and convenience which make it especially attractive to children and other patients who prefer liquid medication.

SMITH-DORSEY • a division of The Wander Company • Lincoln, Nebraska

For the first time

CONVENIENCE and ECONOMY

for that all-important first dose of broad-spectrum antibiotic therapy

New

TERRAMYCIN®
brand of oxytetracycline

INTRAMUSCULAR SOLUTION

Initiation of therapy in *minutes after diagnosis* with new, ready-to-inject Terramycin Intramuscular Solution provides maximum, sustained absorption of potent broad-spectrum activity.

...and for continued, compatible, coordinated therapy

COSA-TERRAMYCIN®
oxytetracycline with glucosamine

CAPSULES

Continuation with oral Cosa-Terramycin every six hours will provide highly effective antibacterial serum and tissue levels for prompt infection control.

The unsurpassed record of clinical effectiveness and safety established for Terramycin is your guide to successful antibiotic therapy.

Supply:
*Terramycin Intramuscular Solution**
100 mg./2 cc. ampules
250 mg./2 cc. ampules

Cosa-Terramycin Capsules
125 mg. and 250 mg.

Cosa-Terramycin is also available as:
Cosa-Terramycin Oral Suspension — peach flavored, 125 mg./5 cc., 2 oz. bottle
Cosa-Terramycin Pediatric Drops — peach flavored, 5 mg./drop (100 mg./cc.), 10 cc. bottle with plastic calibrated dropper

Complete information on Terramycin Intramuscular Solution and Cosa-Terramycin oral forms is available through your Pfizer Representative or the Medical Department, Pfizer Laboratories.

*Contains 2% Xylocaine® (lidocaine), trademark of Astra Pharmaceutical Products, Inc.

Pfizer
Science for the world's well-being™

PFIZER LABORATORIES, Division, Chas. Pfizer & Co., Inc., Brooklyn 6, N. Y.

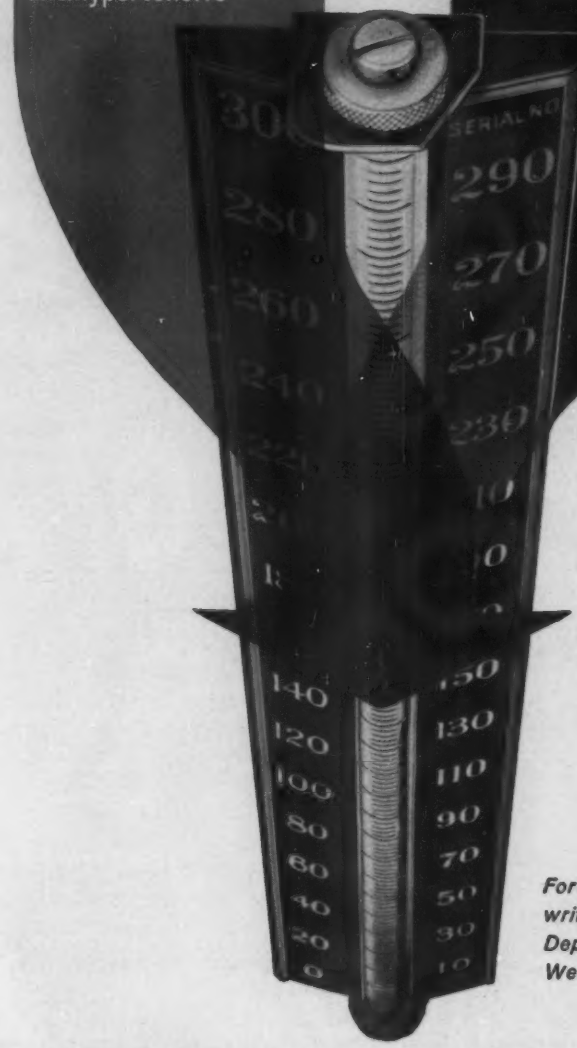
greater antihypertensive effect...fewer side effects

HYDROPRES

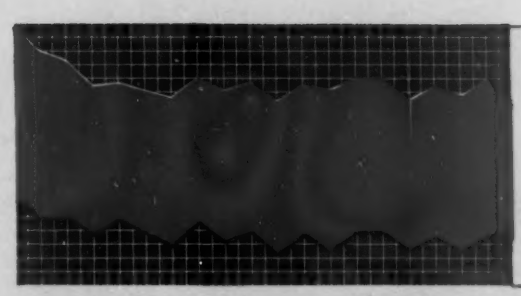
HYDRO DIURIL WITH RESERPINE

antihypertensive

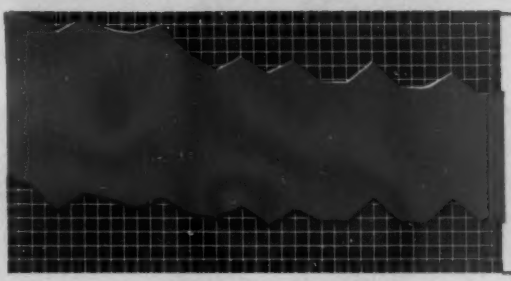
antihypertensive-tranquilizer



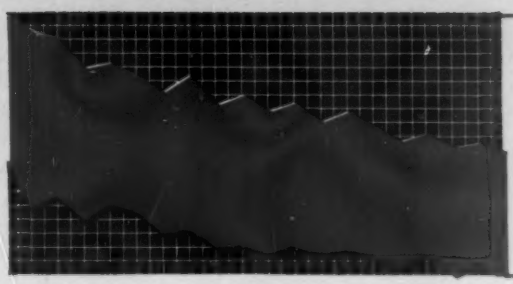
For complete information write Professional Services, Dept. H, Merck Sharp & Dohme, West Point, Pa.



HYDRODIURIL alone



RESERPINE alone



HYDROPRES
much more effective than either of its components alone

- Effective by itself in a majority of patients. Provides smooth, more trouble-free management of hypertension.
- Since HYDRODIURIL and reserpine potentiate each other, the required dosage of each is lower when given together as HYDROPRES than when either is given alone.
- HYDROPRES provides the needed and valuable tranquilizing effect of reserpine. Lower dosage may reduce such side effects of reserpine as excessive sedation and depression.
- Arrest or reversal of organic changes of hypertension may occur.
- Headache, dizziness, palpitations and tachycardia are usually promptly relieved. Anginal pain may be reduced in incidence and severity.
- With HYDROPRES, dietary salt may be liberalized.
- Convenient, controlled dosage.

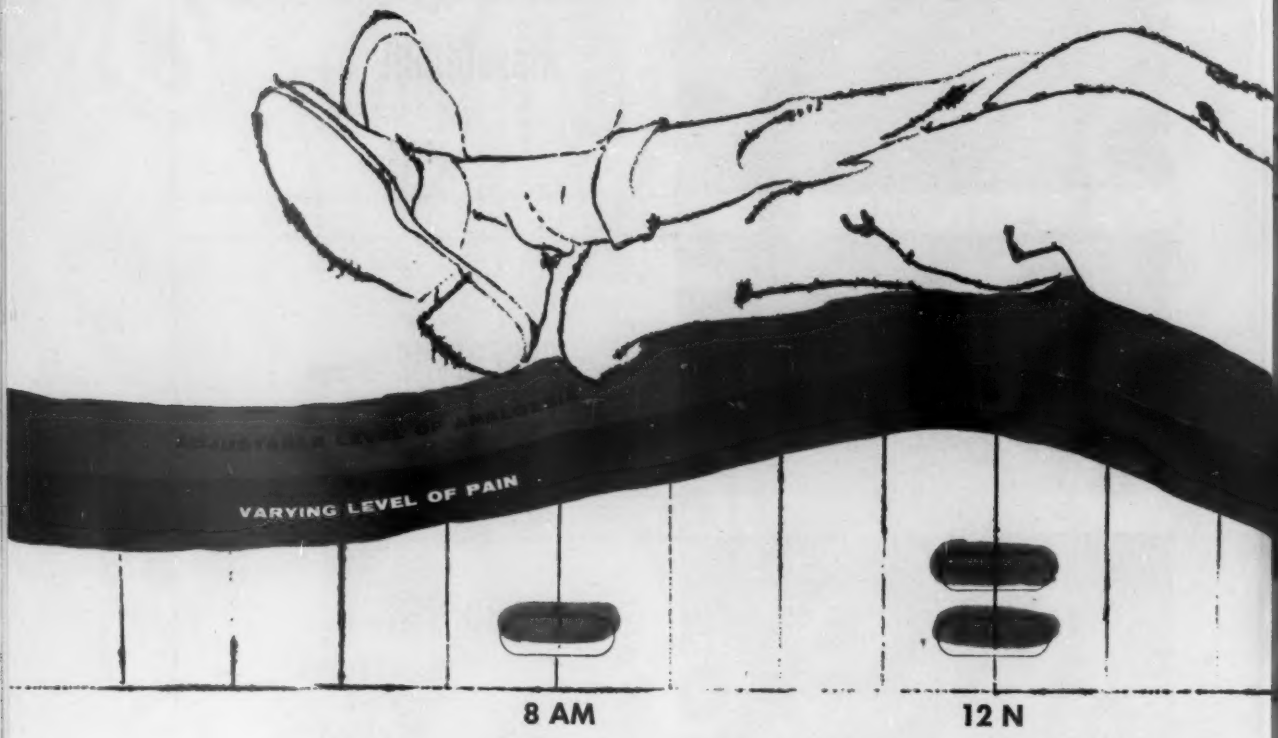
HYDROPRES-25
25 mg. HYDRODIURIL, 0.125 mg. reserpine.
One tablet one to four times a day.

HYDROPRES-50
50 mg. HYDRODIURIL, 0.125 mg. reserpine.
One tablet one or two times a day.

If the patient is receiving ganglion blocking drugs or hydralazine, their dosage must be cut in half when HYDROPRES is added.

MSD **MERCK SHARP & DOHME,** DIVISION OF MERCK & CO., INC., PHILADELPHIA 1, PA.

®HYDRODIURIL AND HYDROPRES ARE TRADEMARKS OF MERCK & CO., INC.



keep all patients* pain-free at all times

- with the proper potency to match pain intensity
- with dosage flexibility to match pain variations

Phenaphen®

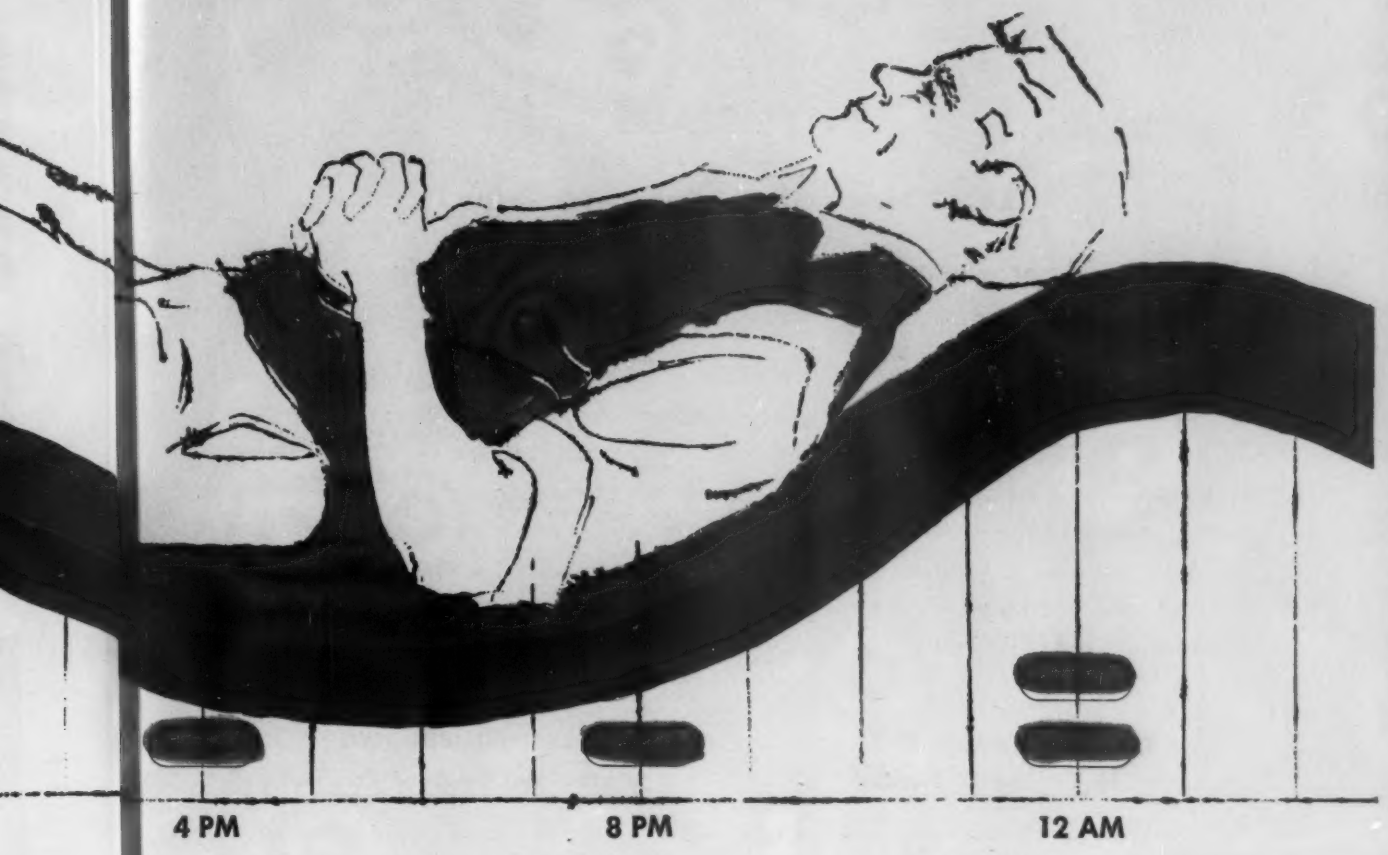
or

Phenaphen® with Codeine

*except those for whom recourse to morphine is inescapable.

Robins A. H. ROBINS CO., INC., RICHMOND 20, VIRGINIA

Ethical Pharmaceuticals of Merit since 1878



Phenaphen and Phenaphen with Codeine provide
a wide range of analgesia, plus complete dosage flexibility,
to match varying pain requirements.

Yours to prescribe:

The **right** dose of the **right** potency at the **right** time.

Phenaphen

Basic non-narcotic formula

For mild to moderate pain

Each capsule contains:

Phenacetin (3 gr.)	194.0 mg.
Acetylsalicylic acid (2½ gr.)	162.0 mg.
Phenobarbital (¼ gr.)	16.2 mg.
Hyoscyamine sulfate	0.031 mg.

Phenaphen No. 2

Phenaphen with Codeine Phosphate ¼ gr. (16.2 mg.)

For moderate to severe pain

Phenaphen No. 3

Phenaphen with Codeine Phosphate ½ gr. (32.4 mg.)

For severe or stubborn pain

Phenaphen No. 4

Phenaphen with Codeine Phosphate 1 gr. (64.8 mg.)

For stubborn or intense pain—to obviate or postpone use of morphine or addicting synthetic narcotics

DOSAGE: One or two capsules as required.

PHYSICIANS

Enroll Now in these Insurance Plans

Approved by The Medical Society of Virginia

Sometimes the physician neglects his own affairs while giving time and energy to the welfare of others. Undoubtedly that is a principal reason why some members of The Medical Society of Virginia have not availed themselves of the extraordinary advantages offered in the personal insurance programs which have been approved by their own organization. Many members of the Society have taken advantage of the two low-cost group programs and both plans are in effect right now. You simply cannot afford to miss this opportunity for your own protection. Outstanding features of the two separate and distinct group plans include the following:

PLAN NUMBER ONE

Major Hospital Nursing

Provides coverage for you, and your wife to age 70, also dependent, unmarried children between the age of fourteen days and twenty-three years. Protection up to $10,000 within three years of accident or sickness is provided. The same amount is provided for any sickness for which payment has been made that occurs after an interval of twelve months.

The plan pays 100% room and board and 100% of the necessary charges for hospital care and treatment. It pays 75% of special nurse expense in the hospital. You have a choice of three deductible amounts to keep your premiums within the range you prefer.

PLAN NUMBER TWO

Professional Overhead Expense

Pays direct to you the covered expense of maintaining your practice should you be disabled.

The premiums you pay under Plan Number 2 are *tax deductible.* Both plans are underwritten by American Casualty Company of Reading, Pennsylvania. Brochures have been mailed to all members of The Medical Society of Virginia. Please fill out your application and return it promptly.

Unlike most plans, our premiums *do not* increase with age.

(For further information call collect) DIamond 4-500

DAVID A. DYER, *Administrator*
Medical Arts Building
Roanoke, Virginia

start
low...
DBI
the "full-range" oral hypoglycemic agent
...safely lowers blood sugar in mild, moderate
and severe diabetes, in children and adults

...go slow

The "Start Low! Go Slow!" dosage pattern with DBI enables a maximum number of diabetics to enjoy the convenience, comfort and satisfactory regulation of oral therapy in:

stable adult diabetes
unstable (brittle) diabetes
juvenile diabetes
sulfonylurea resistant diabetes

"Start Low! Go Slow!" means low initial dosage (25 mg. or 50 mg. in divided doses, per day) with small dosage increments (25 mg.) every 3rd or 4th day until blood sugar levels are adequately controlled. Injected insulin is reduced gradually with each increase in DBI dosage. Satisfactory regulation of mild stable diabetes is usually achieved with DBI alone.*

On "Start Low! Go Slow!" dosage, DBI is relatively well tolerated.

Over 5000 diabetics have been carefully studied on DBI daily for varying periods up to three years. No hematologic or functional changes in liver, blood, kidneys, heart or other organs were seen.

DBI (N-β-phenethylbiguanide) is available as white, scored tablets of 25 mg. each, bottles of 100.

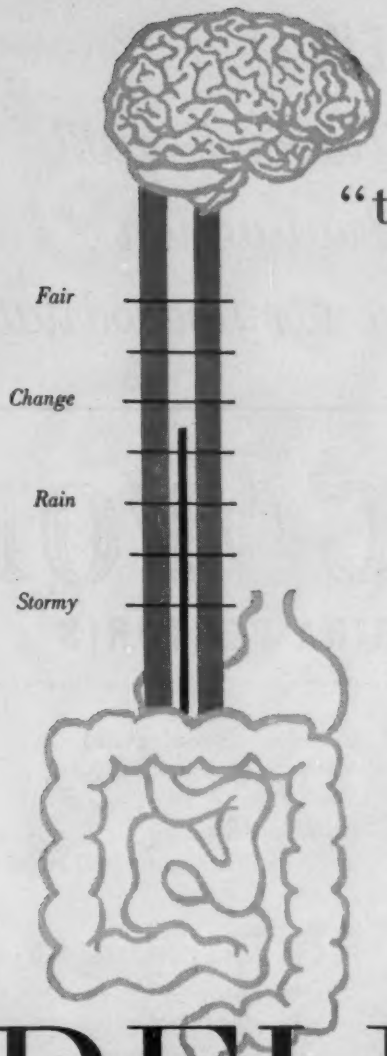
Send for brochure with complete dosage instructions for each class of diabetes, and other pertinent information.

DBI®

®Trademark, brand of Phenformin HCl

U.S. Vitamin & Pharmaceutical Corp.

A subsidiary of Laboratorios, division 250 East 43rd St., New York 17, N.Y.



"the G-I tract
is the
barometer
of the mind..."

Belbarb
soothes the agitated mind
and calms the G-I spasm
through the central effect
of phenobarbital and the
synergistic action of
fixed proportions
of natural belladonna
alkaloids on the
gastrointestinal tract.

BELBARB

SEDATIVE ANTISPASMODIC

20 years of clinical satisfaction

Belbarb No. 1; Belbarb No. 2; Belbarb Elixir; Belbarb-B; Belbarb Trisules

CHARLES C. HASKELL *& COMPANY, Richmond, Virginia*

NEW

"flavor-timed"
dual-action
coronary vasodilator

Dilcoron®

for **ANGINA PECTORIS**

ORAL *(tablet swallowed whole)*
for dependable prophylaxis

SUBLINGUAL-ORAL
for immediate and sustained relief

Nitroglycerin
—0.4 mg. (1/150 grain)—acts quickly

Citrus "flavor-timer"
—signals patient when to swallow

Pentaerythritol tetranitrate
—15 mg. (1/4 grain)—prolongs action

For continuing prophylaxis patient swallows the entire Dilcoron tablet on an empty stomach.

Bottles of 100.

Average prophylactic dose:
1 tablet four times daily
(½ hour before meals and at bedtime).

Therapeutic dose:
1 tablet held under the tongue until citrus flavor disappears, then swallowed.

Winthrop LABORATORIES
NEW YORK 18, N. Y.

If one . . . or all . . . needs nutritional support . . .

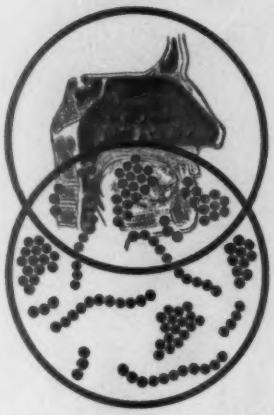
they
deserve

GEVRAL® capsules—14 VITAMINS AND 11 MINERALS

Vitamin-Mineral Supplement Lederle

For Complete Formula see PDR (Physicians' Desk Reference), page 689

LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York



when upper respiratory congestion is complicated by bacterial invaders

TRISULFAMINIC provides logical therapy

- for the patient ill with congestion and infection of the upper respiratory tract, as in purulent rhinitis, sinusitis, tonsillitis and otitis media, when caused by sulfa-susceptible bacteria;
- because secondary invasion by such bacteria so frequently follows the common cold.[1]

the reasons for combining Triaminic with triple sulfas

Triaminic and triple sulfas are not only pharmacologically *compatible*, they are a therapeutically *logical* combination for upper respiratory infections: Triaminic for effective decongestant relief from rhinitis, rhinorrhea and sinusitis;[2] triple sulfas for well-established antibacterial action.

The advantages of Trisulfaminic in upper respiratory infections include: proved effectiveness; safety; economy; ease of administration; less likelihood of sensitivity reactions;[3] compatibility with antibiotics and other antibacterial therapy. Provided also as Suspension for additional convenience.

Trisulfaminic®

TRIAMINIC WITH TRIPLE SULFAS

Available as TABLETS and SUSPENSION

Each easy-to-swallow Trisulfaminic Tablet or 5 ml. teaspoonful of Suspension provides:

Triaminic® .....25 mg.
(phenylpropanolamine HCl 12.5 mg.
pheniramine maleate ..... 6.25 mg.
pyrilamine maleate ..... 6.25 mg.)
Trisulfapyrimidines, U.S.P. .....0.5 Gm.

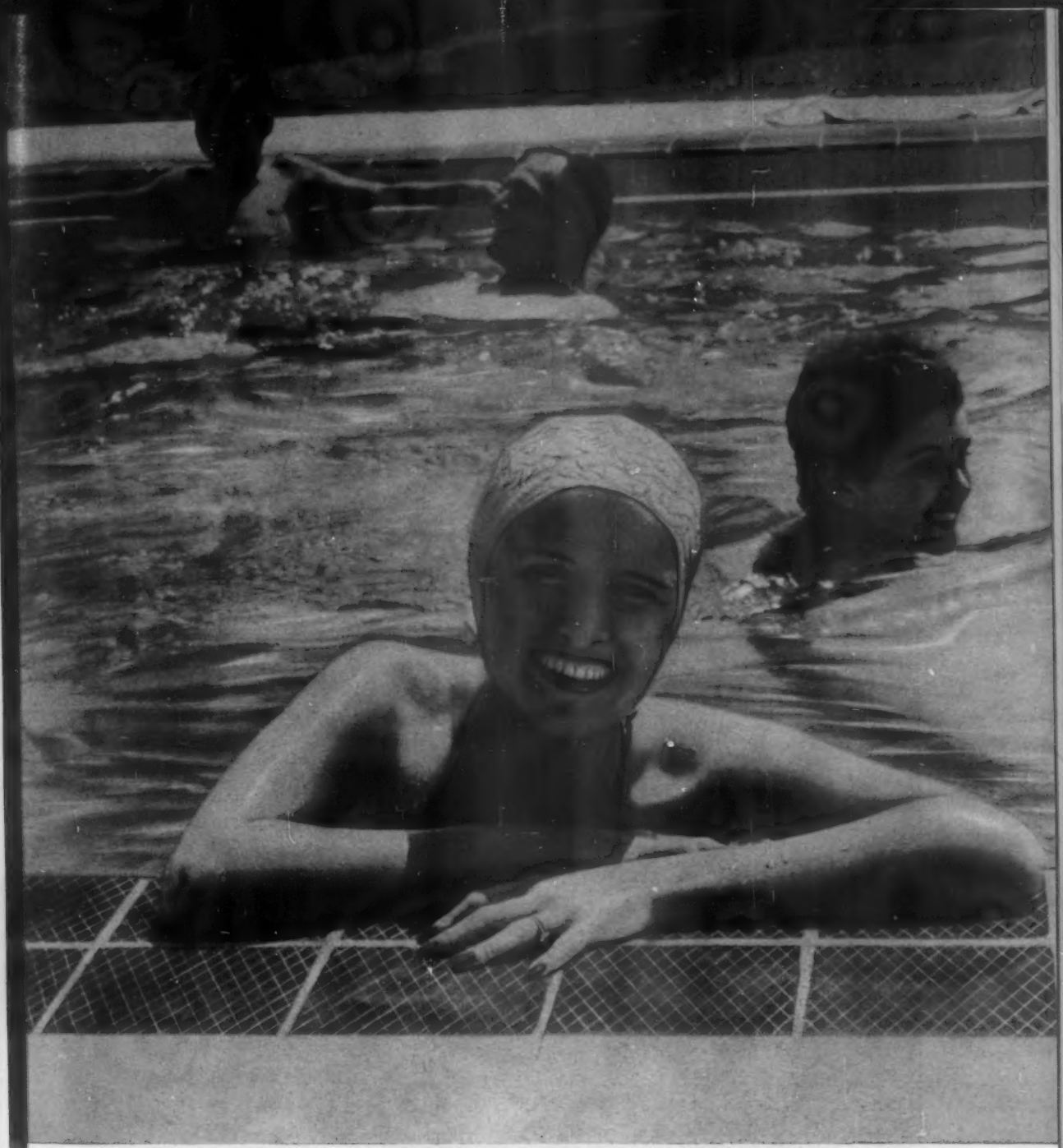
Dosage:

Adults—2 to 4 tablets or tsp. initially, followed by 2 tablets or tsp. every 4 to 6 hours until the patient has been afebrile 3 days. *Children 8 to 12* — 2 tablets or tsp. initially, followed by 1 tablet or tsp. every 6 hours. *Children under 8*—dosage according to weight.

The palatability, convenience and effectiveness of the Suspension make it especially suitable for children and for those older patients who prefer liquid medication.

References: 1. Cecil, R. L., et al.: J.A.M.A. 124:8 (Jan. 1) 1944. 2. Fabricant, N. D.: E.E.N.T. Monthly 37:460 (July) 1958. 3. Beckman, H.: Drugs, Their Nature, Action & Use, Saunders, Philadelphia, 1958, p. 527.

SMITH-DORSEY • a division of The Wander Company • Lincoln, Nebraska



Of course, women like "Premarin"®

THERAPY for the menopause syndrome should relieve not only the psychic instability attendant the condition, but the vasomotor instability of estrogen decline as well. Though they would have a hard time explaining it in such medical terms, this is the reason women like "Premarin."

The patient isn't alone in her devotion to this natural estrogen. Doctors, husbands, and family all like what it does for the patient, the wife, and the homemaker.

When, because of the menopause, the psyche needs nursing—"Premarin" nurses. When hot flushes need suppressing, "Premarin" suppresses. In short, when you want to treat the whole menopause, (and how else is it to be treated?), let your choice be "Premarin," a complete natural estrogen complex.

"Premarin," conjugated estrogens (equine), is available as tablets and liquid, and also in combination with meprobamate or methyltestosterone.

Ayerst Laboratories • New York 16, N. Y. • Montreal, Canada

5854

BAYER

BAYER

1¼ Grs. Ea.
FLAVORED

Living up to a family tradition

There are probably certain medications which are special favorites of yours, medications in which you have a particular confidence.

Physicians, through ever increasing recommendation, have long demonstrated their confidence in the efficacy, potency and purity of Bayer Aspirin, the world's first aspirin.

And the same manufacturing skill, the same 106 ingredient and product tests, the same exclusive processes which contribute to the superiority of Bayer Aspirin set the standards of excellence for Bayer Aspirin for Children.

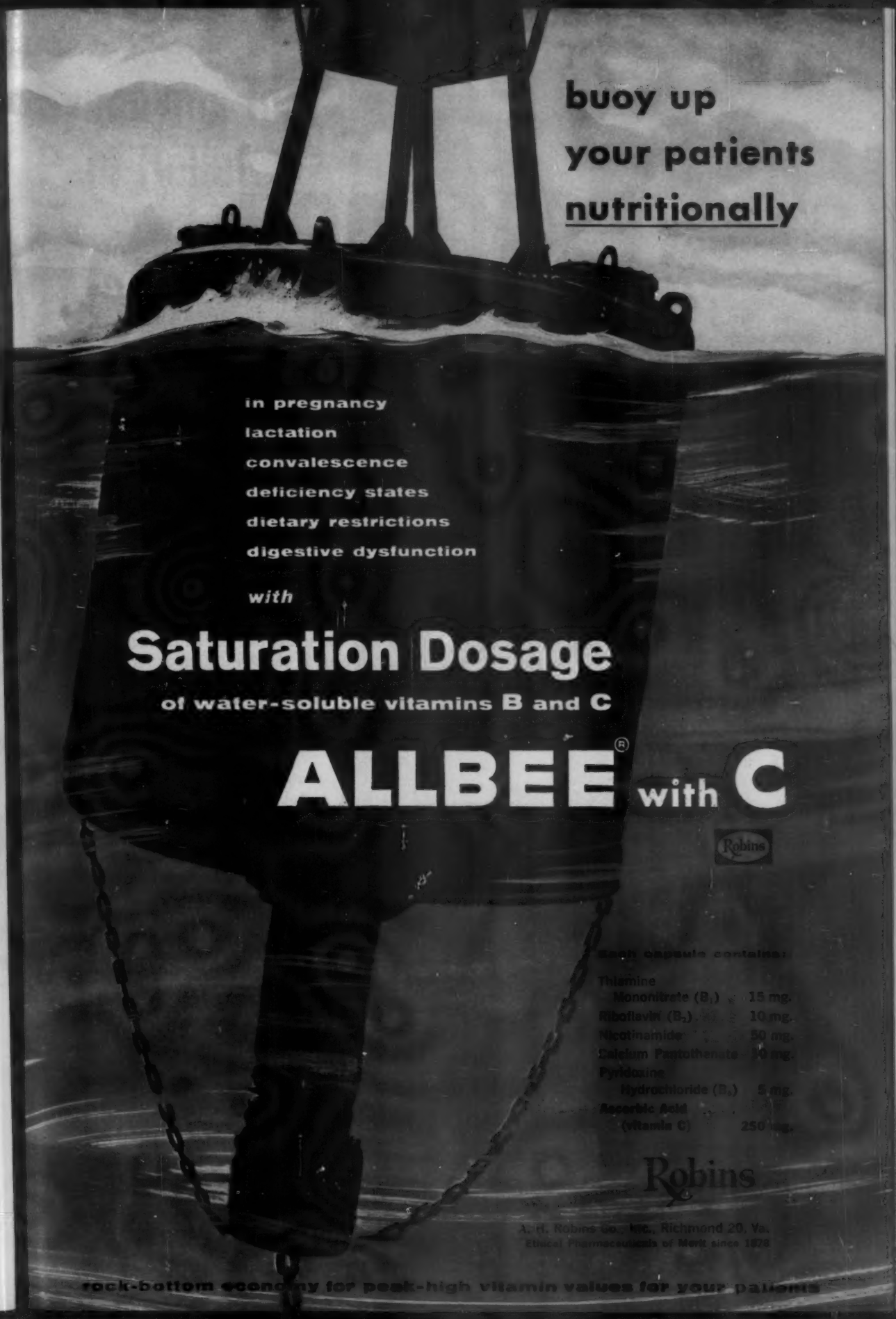
You can depend on Bayer Aspirin for Children for it has been conscientiously formulated to be the best tasting aspirin ever made and to live up to the Bayer family tradition of providing the finest aspirin the world has ever known.

Bayer Aspirin for Children—1¼ grain flavored tablets. Supplied in bottles of 50.

● We welcome your requests for samples on Bayer Aspirin and Flavored Bayer Aspirin for Children.

New Tamper-Proof Cap

THE BAYER COMPANY, DIVISION OF STERLING DRUG INC., 1450 BROADWAY, NEW YORK 18, N. Y.


buoy up
your patients
nutritionally
in pregnancy
lactation
convalescence
deficiency states
dietary restrictions
digestive dysfunction
with
Saturation Dosage
of water-soluble vitamins B and C
ALLBEE® with C
Robins
Each capsule contains:
Thiamine
Mononitrate (B_1) 15 mg.
Riboflavin (B_2) 10 mg.
Nicotinamide 50 mg.
Calcium Pantothenate 20 mg.
Pyridoxine
Hydrochloride (B_6) 5 mg.
Ascorbic Acid
(vitamin C) 250 mg.
Robins
A. H. Robins Co., Inc., Richmond 20, Va.
Ethical Pharmaceuticals of Merit since 1878
rock-bottom economy for peak-high vitamin values for your patients

RESEARCH:

key to Kent's popularity

In 1958, Kent made the greatest gain in popularity ever recorded by any filter cigarette in any year—a sales increase of 20-billion cigarettes.

Behind this popularity is a story of months and years of research, perfecting the remarkable combination of filter action and flavor found in today's Kent cigarette. In developing Kent, Lorillard research scientists recognized that smokers wanted, on the one hand, a really satisfying taste; on the other, reduced tars and nicotine. In addition, smokers demanded a free and easy draw.

These, then, were the objectives. The first scientific breakthrough in the project was the development of the exclusive Micronite filter, patented by Lorillard. This filter was created because of newly-discovered principles in the field of filtration, which have been previously described in these pages.

Though this filter satisfied everyone on its ability to reduce tars and nicotine to the lowest level among the largest selling brands, there was still work to be done in the areas of taste and draw. After additional months of research, a new tobacco blend was developed which delivered rich taste *after* the smoke had passed through the filter. Next in the series of laboratory triumphs was a method of improving the draw to compare with the most free-drawing of all filter brands.

The rest of the Kent story is a legend in the tobacco industry. Outside, independent research studies confirmed the fact that Kent had achieved its objectives. Smokers responded. In fact, during the past year, more smokers changed to Kent than to any other cigarette in America.

A Product of P. Lorillard Company—First with the finest cigarettes—through Lorillard Research!

Synonyms for Pain Relief...

...providing the desired gradation of potencies for relief of varying intensities of pain

'TABLOID' 'EMPIRIN' COMPOUND®

Acetophenetidin ..... gr. 2½
Acetylsalicylic Acid .... gr. 3½
Caffeine ..... gr. ½

'TABLOID' 'EMPIRIN' COMPOUND® WITH CODEINE PHOSPHATE*

No. 1
Acetophenetidin ..... gr. 2½
Acetylsalicylic Acid .... gr. 3½
Caffeine ..... gr. ½
Codeine Phosphate .... gr. ⅛

No. 2
Acetophenetidin ..... gr. 2½
Acetylsalicylic Acid .... gr. 3½
Caffeine ..... gr. ½
Codeine Phosphate .... gr. ¼

No. 3
Acetophenetidin ..... gr. 2½
Acetylsalicylic Acid .... gr. 3½
Caffeine ..... gr. ½
Codeine Phosphate .... gr. ½

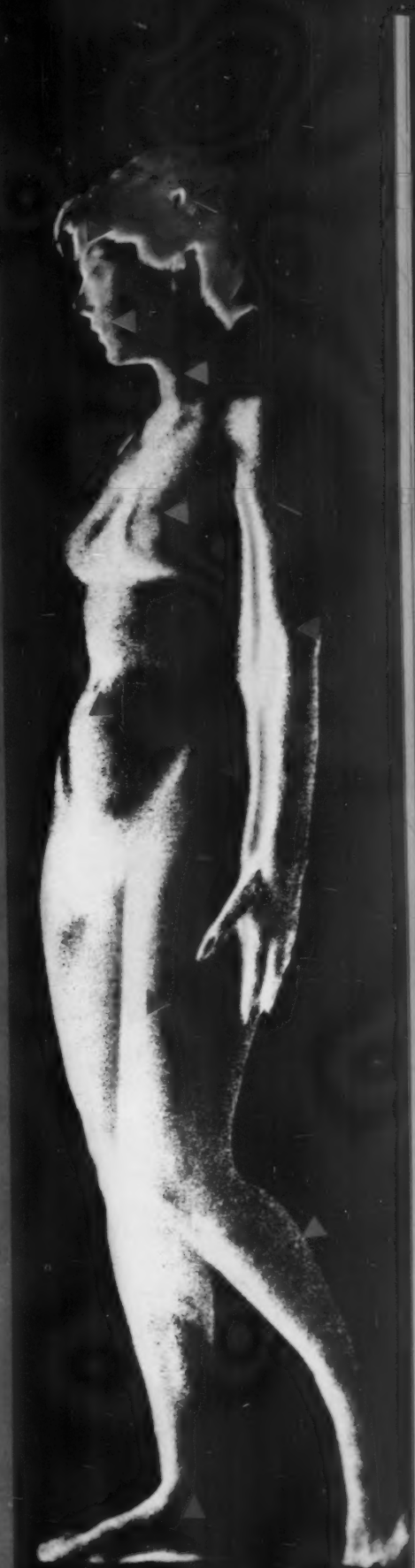
No. 4
Acetophenetidin ..... gr. 2½
Acetylsalicylic Acid .... gr. 3½
Caffeine ..... gr. ½
Codeine Phosphate .... gr. 1

*Subject to Federal Narcotic Regulations

IN
simple headache
rheumatic conditions
arthralgias
myalgias
common cold
toothache
earache
dysmenorrhea
neuralgia
minor trauma
tension headache
premenstrual tension
minor surgery
post-partum pain
trauma
organic disease
neoplasm
muscle spasm
colic
migraine
musculo-skeletal pains
postdental surgery
post-partum involution
fractures
synovitis/bursitis

relief of pain of all degrees of severity up to that which requires morphine

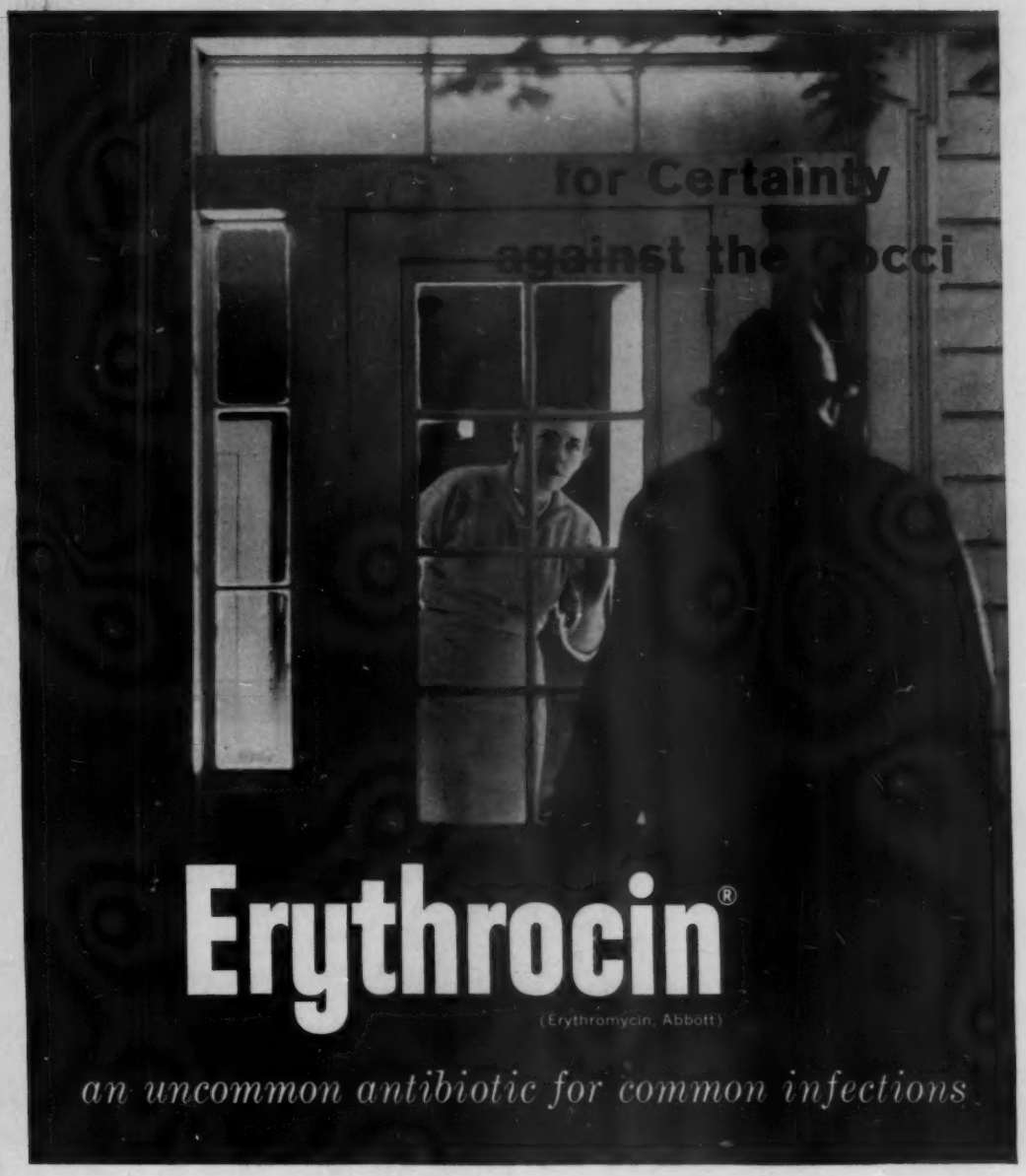
AND IN
fevers
dry, unproductive coughs



BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, New York

Your experience and trust throughout the years have established the wide use of the 'Empirin' family in medical practice—dependable analgesics for the effective relief of pain, fever, and cough—with safety.

BURROUGHS WELLCOME & CO. (U.S.A.) INC.
Tuckahoe, New York



Provides fast, high blood and tissue concentrations—plus an unparalleled safety record. Erythrocin is available in easy-to-swallow Filmtabs® (100 and 250 mg.); in tasty, citrus-flavored Oral Suspension (200 mg. per 5-cc. teaspoonful); and for intravenous and intramuscular use.

ABBOTT

®FILMTABS—FILM-SEALED TABLETS. ABBOTT; U.S. PAT. NO. 2,081,085

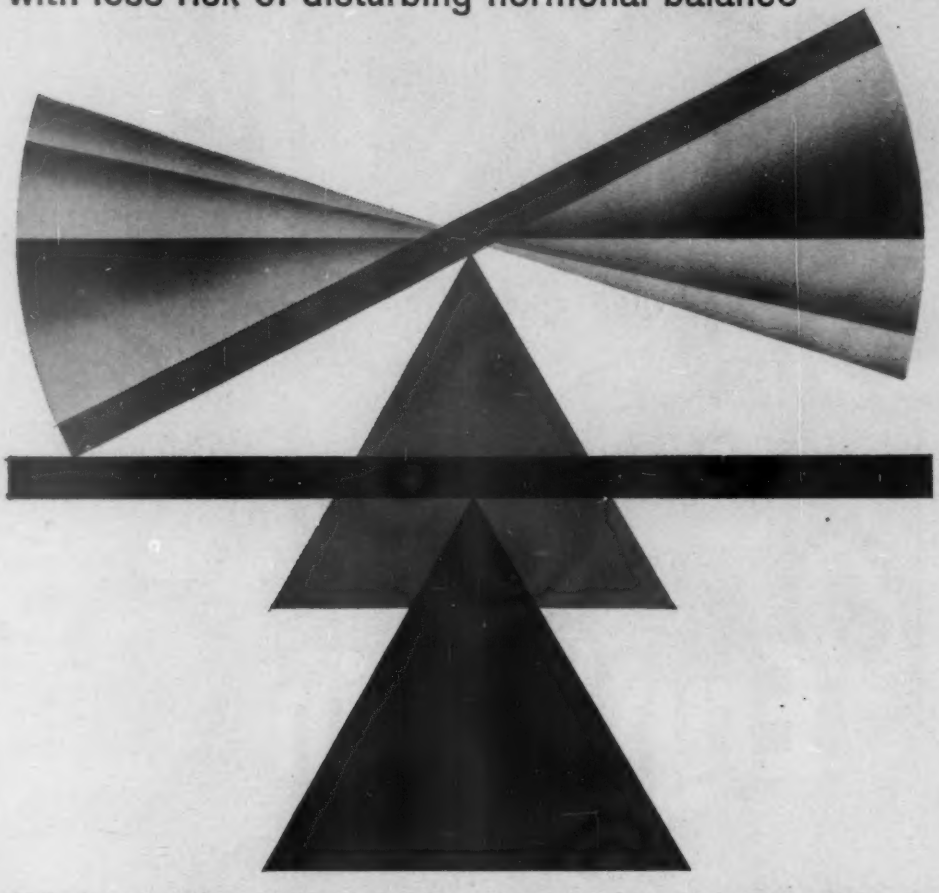
Effective relief in rheumatic disorders

Sterazolidin® capsules

prednisone-phenylbutazone Geigy

Geigy

with less risk of disturbing hormonal balance



In the treatment of the rheumatic disorders new Sterazolidin provides a method of limiting the gravest danger inherent in steroid therapy... hypercortisonism arising from excessive dosage.

Repeatedly it has been shown that the addition of low dosage of Butazolidin sharply reduces hormone requirement.[1-4] Sterazolidin is a combination of prednisone (1.25 mg.) and Butazolidin (50 mg.) which provides, in the majority of cases, consistent relief at a stable uniform maintenance dosage significantly below the level at which serious hormonal imbalance is likely to occur.

Sterazolidin® (prednisone-phenylbutazone Geigy). Each capsule contains prednisone 1.25 mg.; phenylbutazone 50 mg.; dried aluminum hydroxide gel 100 mg.; magnesium trisilicate 150 mg. and homatropine methylbromide 1.25 mg.

1. Kuzell, W. C., and others.: Arch. Int. Med. 92:646, 1953. 2. Wolfson, W. Q.: J. Michigan M. Soc. 54:323, 1955. 3. Strandberg, B.: Brit. J. Phys. Med. 19:9, 1956. 4. Platt, W. D., Jr., and Steinberg, I. H.: New England J. Med. 256:823 (May 2) 1957.

Geigy, Ardsley, New York

it started
as a
"cold"...
to prevent
the sequelae
of u.r.i. ...
and relieve the
symptom complex
ACHROCIDIN®
Tetracycline-Antihistamine-Analgesic Compound Lederle
Sinusitis, otitis, tonsillitis, adenitis, bronchitis or pneumonitis develops as a serious bacterial complication in about one in eight cases of acute upper respiratory infection.(1) To protect and relieve the "cold" patient... ACHROCIDIN.
Usual dosage: 2 tablets or teaspoonfuls q.i.d. (equiv. 1 Gm. tetracycline). Each TABLET contains: ACHROMYCIN® Tetracycline HCl (125 mg.); phenacetin (120 mg.); caffeine (30 mg.); salicylamide (150 mg.); chlorothen citrate (25 mg.). Also as SYRUP, caffeine-free.
(1) Estimate based on epidemiologic study by Van Volkenburgh V. A. and Frost W. H.: Am. J. Hygiene 71:122, Jan. 1933.
Lederle
LEDERLE LABORATORIES, A Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

What a great feeling to see *all* the pins go down . . .

"Good for you!"

A STRIKE! You did it—your side wins the game. Now, "Champ," relax—reach for a rewarding glass of beer. More than a thirst-quencher, beer is the light, bright beverage just bubbling with life. A glass of beer adds so much fun to so many occasions. And it really picks you up, too!

Beer Belongs—to the fun of living!

United States Brewers Foundation
CHARTERED 1862

Beer's rich in wonderful, healthful things. Nature's own choice barley malt, hops, minerals, and the purest water. Good wholesome beer or ale perks you up—won't let you down.

running noses

and open stuffed noses orally

Triaminic®

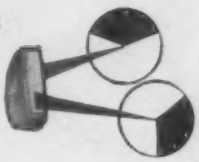
the leading oral nasal decongestant

- in nasal and paranasal congestion
- in sinusitis
- in postnasal drip
- in allergic reactions of the upper respiratory tract.

safer and more effective than topical medication[1,2,3]

- systemic transport to all respiratory membranes
- provides longer-lasting relief
- presents no problem of rebound congestion
- avoids "nose drop addiction"

Relief with Triaminic is prompt and prolonged because of this special timed-release action . . . beneficial effect starts in minutes, lasts for hours



first—the outer layer dissolves within minutes to produce 3 to 4 hours of relief

then—the core disintegrates to give 3 to 4 *more* hours of relief

Each TRIAMINIC Tablet provides:
Phenylpropanolamine HCl .....50 mg.
Pheniramine maleate .....25 mg.
Pyrilamine maleate .....25 mg.

One-half of this formula is in the outer layer, the other half is in the core.

Dosage: One tablet in the morning, mid-afternoon and at bedtime.

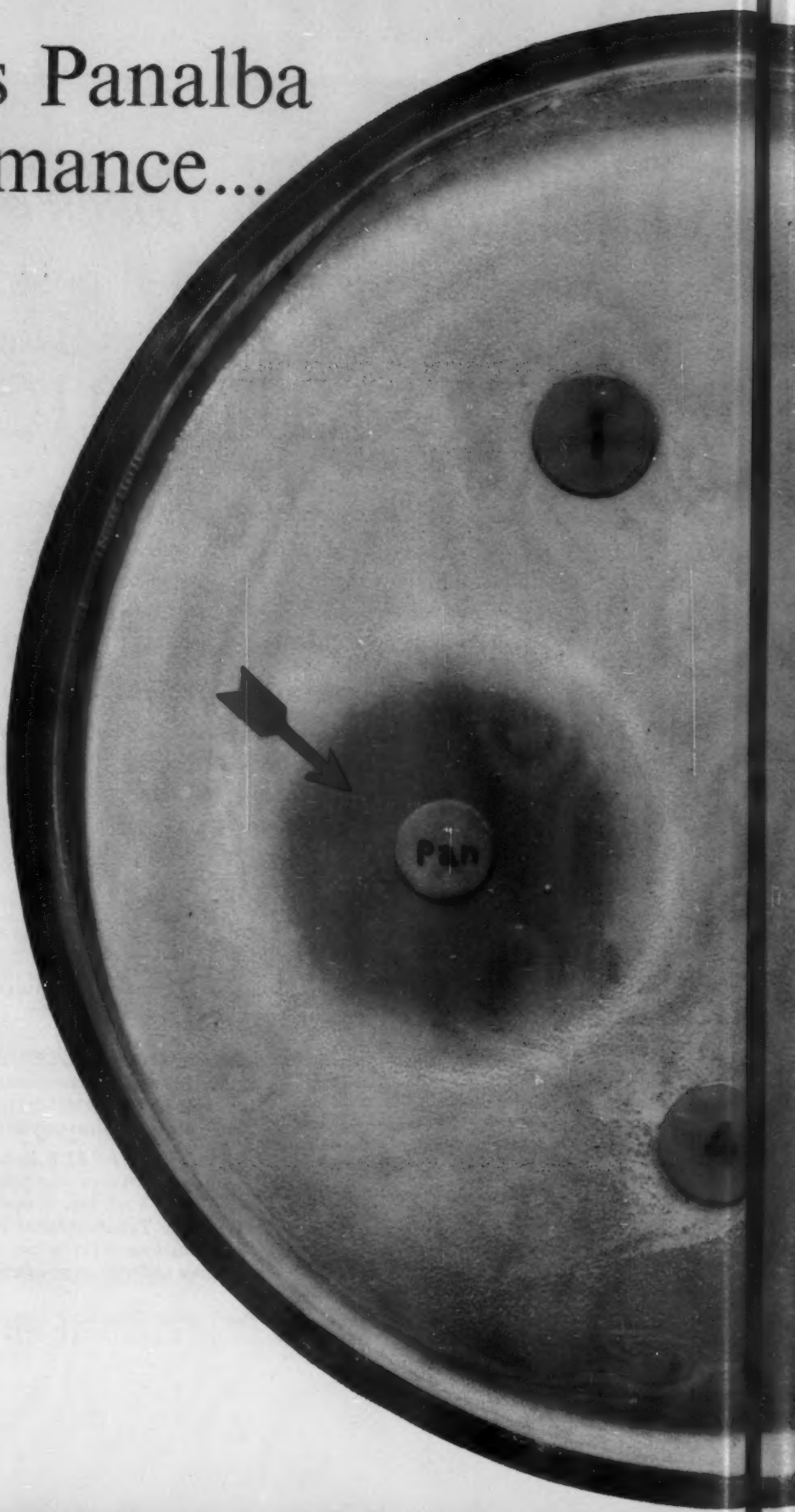
References: 1. Lhotka, F. M.: Illinois M. J. 112: 259 (Dec.) 1957. 2. Fabricant, N. D.: E.E.N.T. Monthly 37:460 (July) 1958. 3. Farmer, D. F.: Clin. Med. 5:1183 (Sept.) 1958.

TRIAMINIC JUVELETS: Each timed-release Juvelet is equivalent in formula and dosage to one-half of a TRIAMINIC tablet, for the adult or child who requires only half strength dosage.

TRIAMINIC SYRUP is recommended for adults and children who prefer liquid medication. Each 5 ml. tsp. is equivalent to ¼ of a Triaminic Tablet. *Adults:* 2 tsp. 3-4 times a day; *children 6-12:* 1 tsp. 3-4 times a day; *children under 6:* in proportion.

SMITH-DORSEY • a division of The Wander Company • Lincoln, Nebraska

This is Panalba performance...



in pneumonia

. . . into a mixed culture of the three organisms commonly involved in pneumonia . . . *K. pneumoniae*, *Diplococcus pneumoniae*, and *Staphylococcus aureus* (in this case a resistant strain) . . . we introduce the five most frequently used antibiotics.

Twenty-four hours later (in this greatly enlarged photograph), note that only *one* of the five leading antibiotics has stopped *all* the organisms, including the resistant staph! This is Panalba.

In your next pneumonia patient . . . in *all* your patients with potentially-serious infections . . . provide this extra protection with your prescription:

Dosage—1 or 2 capsules 3 or 4 times a day.
Supplied—Capsules containing Panmycin phosphate equivalent to 250 mg. tetracycline hydrochloride, and 125 mg. Albamycin as novobiocin sodium, in bottles of 16 and 100.
Now available: new Panalba Half-Strength Capsules in bottles of 16 and 100.

Panalba*

(Panmycin* Phosphate plus Albamycin*)

The broad-spectrum antibiotic of *first* resort

Upjohn The Upjohn Company Kalamazoo, Michigan

*TRADEMARK, REG. U. S. PAT. OFF.

WHENEVER COUGH THERAPY IS INDICATED

Hycomine®

SYRUP

THE *complete* Rx FOR COUGH CONTROL

cough sedative / antihistamine / expectorant

- relieves cough and associated symptoms in 15-20 minutes
- effective for 6 hours or longer
- promotes expectoration
- rarely constipates
- agreeably cherry-flavored

Each teaspoonful (5 cc.) of HYCOMINE contains:

Hycodan®		
Dihydrocodeinone Bitartrate (Warning: May be habit-forming)	5 mg.	6.5 mg.
Homatropine Methylbromide	1.5 mg.	
Pyrilamine Maleate		12.5 mg.
Ammonium Chloride		60 mg.
Sodium Citrate		85 mg.

Endo®

Literature on request

Supplied: As a pleasant-to-take syrup. May be habit-forming. Federal law permits oral prescription.

ENDO LABORATORIES Richmond Hill 18, New York

U.S. Pat. 2,630,400

Q Why should I use KANTREX® Injection* when there are so many other antibiotics available?

A

Because KANTREX Injection is bactericidal to a wide variety of organisms, including many that are highly resistant to the other antibiotics[3,4,10,12,13,17,18,20,21,23,24,25,27,30,33,35,37]

—organisms such as *Staph. aureus, Staph. albus, A. aerogenes, E. coli, H. pertussis, K. pneumoniae, Neisseria* sp., *Shigella, Salmonella* and many strains of *B. proteus.*

Q *But if I use* KANTREX *Injection, won't that help make bacteria resistant to it also?*

Next page, please .....

*Kanamycin sulfate injection (Bristol)

Q *But if I use* KANTREX *Injection, won't that help make bacteria resistant to it also?*

A A very good question, but it is reassuring to note that in almost two years of clinical use of KANTREX for the treatment of infections for which it is recommended, the emergence of KANTREX-resistant bacterial populations has not been a problem.

Q *My impression is that* KANTREX *is just another neomycin. Isn't that so?*

A Indeed not. The only thing KANTREX and neomycin have in common is a similar antimicrobial spectrum. Otherwise, they're very different: they have different chemical structures; the toxicity of KANTREX is "much less than that of neomycin"[14]; and clinically, KANTREX Injection is practical for systemic administration routinely, while neomycin is not.

Q *You mean that* KANTREX *Injection doesn't have the nephrotoxicity of neomycin?*

A Precisely. It's true that when KANTREX Injection is used, urinary casts – even slight albuminuria or microscopic hematuria – may appear, especially in poorly hydrated patients, but this does not reflect any progressive damage to the kidneys. These signs promptly disappear on adequate hydration or termination of therapy.

Q *Then why do you recommend reduced dosage in patients with renal impairment?*

A Because renal impairment causes an excessive accumulation of KANTREX in the blood and tissues, when usual doses are administered. Since KANTREX Injection is excreted entirely by the kidneys, renal impairment leads

to unnecessarily high and prolonged blood levels; and such excessive concentrations increase the risk of ototoxicity.

Q *Is that why we see reports of patients developing hearing loss during* KANTREX *Injection therapy?*

A Yes. A study of the few reported cases in which patients have suffered impaired hearing will show that in every instance they had pre-existing or concurrent renal impairment, yet received usual or excessive doses of KANTREX Injection. Dosage recommendations for KANTREX Injection emphasize that in patients with renal dysfunction, adequate serum levels can be achieved with a fraction of the dose suggested for patients with normal kidney function – with minimal risk of ototoxicity.

Q *Since urinary tract infections are often accompanied by renal impairment, does that mean I shouldn't use* KANTREX *Injection in such conditions?*

A Not at all. With proper precautions, KANTREX Injection is an excellent drug for the treatment of urinary tract infections, especially those due to *Proteus*, *A. aerogenes* and *E. coli*, even when renal impairment is present.

Q *What are the "proper precautions" in a patient with impaired renal function?*

A The package literature covers them in detail. First, the daily dose should be reduced in such a patient. Then, if he is going to receive KANTREX Injection for 7 days or more, a pre-treatment audiogram should be done, and it should be repeated at appropriate intervals during therapy. If tinnitus or subjective hearing loss develops, or if followup audiograms show significant loss of high frequency response, KANTREX therapy should be discontinued. However, therapy for 7 days or more

is seldom required because the clinical response to KANTREX Injection is so rapid.

Q *Why do you put so much emphasis on* KANTREX'S *"rapid action"? Every antibiotic I've heard about is supposed to be "rapid acting."*

A There is such an abundance of clinical evidence about "rapid acting" that it takes KANTREX Injection out of the "supposed-to" class.[1,2,3,7,8,9,11,15,16,19,21,22,26,29,32,33] Remember, the effectiveness of KANTREX Injection therapy can usually be appraised in 24 to 36 hours. That's definite evidence of rapid action. In fact, one group of investigators reported that "the rapidity with which bacteria are killed by this agent is reflected by the promptness of the clinical response."[29]

Q *Does* KANTREX *Injection cause blood dyscrasias?*

A In extensive clinical and toxicity studies by numerous investigators, as well as almost two years of general use, not a single instance of such toxicity has been reported.

Q *Can I administer* KANTREX *Injection in any other way than by the intramuscular route?*

A Yes. While it's usually given intramuscularly, other routes are practicable: intravenous, intraperitoneal, by aerosol, and as an irrigating solution. Complete instructions are included in the package insert.

Q *So you think I ought to use* KANTREX *Injection as my first choice antibiotic in staph and gram-negative infections?*

A Yes – because all evidence to date indicates that it is bactericidal against a wide range of organisms... rapid acting... does not encourage development of bacterial resistance... is well tolerated in specified dosage... and has not caused any blood dyscrasias.

KANTREX® CAPSULES

for local gastrointestinal therapy... not for systemic infections

Q *Why can't I use* KANTREX *Capsules for systemic medication?*

A Because there is only negligible absorption of KANTREX from the gastrointestinal tract.[3,5,6,8,28,34] Thus, capsules cannot provide effective blood levels.

Q *Then what are* KANTREX *Capsules used for?*

A Preoperative bowel sterilization, and local treatment of intestinal infections due to kanamycin-sensitive organisms.

Q *I've been using neomycin for preoperative bowel sterilization. Why should I switch to* KANTREX *Capsules?*

A Because KANTREX has been rated as "superior to neomycin" for this purpose.[6] It provides rapid and satisfactory control of coliforms, clostridia, staphylococci and streptococci; yeasts do not proliferate; stool concentrations of the drug are exceptionally high; and nausea, vomiting or intestinal irritation have not been observed.[5,6]

Q *What advantages do* KANTREX *Capsules offer me in the treatment of intestinal infections?*

A A high degree of effectiveness against most of the pathogens responsible for such infections: *Salmonella, Shigella, Staph. aureus, E. coli* and *Endamoeba histolytica.* Moreover, their use has been "remarkably free of any side effects."[31]

KANTREX®

INJECTION KANAMYCIN SULFATE INJECTION

INDICATIONS

Infections due to kanamycin-sensitive organisms, particularly staph or "gram-negatives": genito-urinary infections; skin, soft tissue and post-surgical infections; respiratory tract infections; septicemia and bacteremia; osteomyelitis and periostitis.

DOSAGE: INTRAMUSCULAR ROUTE

Recommended daily dose is 15 mg. per kg. of body weight, in 2 to 4 divided doses.

For intramuscular administration, KANTREX Injection should be injected deeply into the upper outer quadrant of the gluteal muscle.

TOXICITY

When the recommended precautions are followed, the incidence of toxic reactions to KANTREX is low. In well hydrated patients under 45 years of age with normal kidney function, receiving a total dose of 20 Gm. or less of KANTREX, the risk of ototoxic reactions is negligible.

In patients with renal disease and impaired renal function, the daily dose of KANTREX should be reduced in proportion to the degree of impairment to avoid accumulation of the drug in serum and tissues, thus minimizing the possibility of ototoxicity. In such patients, if therapy is expected to last 7 days or more, audiograms should be obtained prior to and during treatment. KANTREX therapy should be stopped if tinnitus or subjective hearing loss develops, or if audiograms show significant loss of high frequency response.

OTHER ROUTES OF ADMINISTRATION

KANTREX should be used by intravenous infusion only when the intramuscular route is impracticable. KANTREX can also be employed for intraperitoneal use, aerosol treatment, and as an irrigating solution. See package insert for directions.

PRECAUTIONS

Use of antibiotics may occasionally result in overgrowth of non-sensitive organisms. If superinfection appears during therapy, appropriate measures should be taken.

SUPPLY

Available in rubber-capped vials as a ready-to-use sterile aqueous solution in two concentrations (stable at room temperature indefinitely):

KANTREX Injection, 0.5 Gm. kanamycin (as sulfate) in 2 ml. volume.
KANTREX Injection, 1.0 Gm. kanamycin (as sulfate) in 3 ml. volume.

CAPSULES (for local gastrointestinal therapy; not for systemic medication)

INDICATIONS AND DOSAGE

For preoperative bowel sterilization: 1.0 Gm. (2 capsules) every hour for 4 hours, followed by 1.0 Gm. (2 capsules) every 6 hours for 36 to 72 hours.

For intestinal infections: Adults: 3.0 to 4.0 Gm. (6 to 8 capsules) per day in divided doses for 5 to 7 days. Infants and children: 50 mg. per kg. per day in 4 to 6 divided doses for 5 to 7 days.

PRECAUTION

Preoperative use of KANTREX Capsules is contraindicated in the presence of intestinal obstruction. Although only negligible amounts of KANTREX are absorbed through intact intestinal mucosa, the possibility of increased absorption from ulcerated or denuded areas should be considered.

SUPPLY

KANTREX Capsules, 0.5 Gm. kanamycin (as sulfate), bottles of 20 and 100.

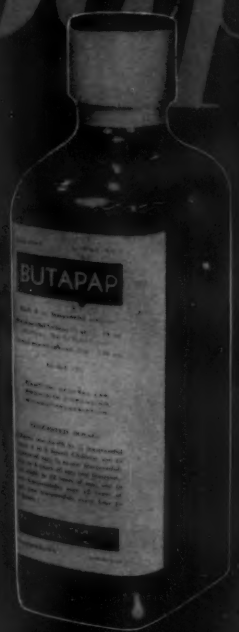
REFERENCES:

1. Andrieu, G., Monnier, J., and Bourse, R.: Presse Med. 67:713, 1959. 2. Berger, S. H., and Wehrle, P. F.: Ann. N. Y. Acad. Sci. 76:136, 1958. 3. Bunn, P. A., Baltch, A., and Krajnyak, O.: *Ibid.* 76:109, 1958. 4. Bunn, P. A., and Baltch, A.: New Eng. J. Med. 259:659, 1958. 5. Cohn, I., Jr., and Longacre, A. B.: S. G. & O. 108:100, 1959. 6. Cohn, I., Jr.: Ann. N. Y. Acad. Sci. 76:212, 1958. 7. Cronk, G. A., and Naumann, D. E.: *Ibid.* 76:308, 1958. 8. Cronk, G. A., and Naumann, D. E.: J. Lab. & Clin. Med. 53:888, 1959. 9. Davies, F. G.: Ann. N. Y. Acad. Sci. 76:129, 1958. 10. Dougherty, L. J., Seneca, H., and Lattimer, J. K.: Antibiotics Annual 1958-1959, p. 713. 11. Dube, A. H.: Am. Pract. & Digest Treat. 10:1165, 1959. 12. Finegold, S. M., *et al.*: Antibiotics Annual 1958-1959, p. 606. 13. Finegold, S. M., *et al.*: Ann. N. Y. Acad. Sci. 76:319, 1958. 14. Finland, M.: *Ibid.* 76:391, 1958. 15. Finland, M.: Lancet 2:209, 1958. 16. Fujii, R., *et al.*: J. Japan M. A. 39:740, 1958; abst. World-Wide Abst. Gen. Med. 2:28, 1959. 17. Gourevitch, A., Hunt, G. A., and Lein, J.: Ant. & Chemo. 8:149, 1958. 18. Gourevitch, A., *et al.*: Ann. N. Y. Acad. Sci. 76:31, 1958. 19. Greey, P. H., and Wightman, K. J. R.: *Ibid.* 76:224, 1958. 20. Griffith, L. J., and Ostrander, W. E.: Ant. & Chemo. 9:416, 1959. 21. Hewitt, W. L., and Finegold, S. M.: Ann. N. Y. Acad. Sci. 76:122, 1958. 22. High, R. H., Sarris, A., and Huang, N. N.: *Ibid.* 76:289, 1958. 23. Hirsh, H. L.: Sibley Mem. Hosp. Alumni Assn. Bull. 2:16, 1959. 24. Hunt, G. A., and Moses, A. J.: Ann. N. Y. Acad. Sci. 76:81, 1958. 25. Lattimer, J. K., Seneca, H., Zinsser, H. H. and Troc, O.: J.A.M.A. 170:938, 1959. 26. Prigot, A., Shidlovsky, B. A., and Campbell, E. A.: Ann. N. Y. Acad. Sci. 76:204, 1958. 27. Riley, H. D., Jr.: Antibiotics Annual 1958-1959, p. 622. 28. Ruiz Sanchez, F., *et al.*: *Ibid.*, p. 725. 29. Rutenburg, A. M., Koota, G. M., and Schweinburg, F. B.: Ann. N. Y. Acad. Sci. 76:348, 1958. 30. Slotkin, E. A.: Postgrad. Med. 25:433, 1959. 31. Thurman, W. G., and Platou, R. V.: Ann. N. Y. Acad. Sci. 76:230, 1959. 32. Welch, H., *et al.*: *Ibid.* 76:66, 1958. 33. White, A., and Knight, V.: *Ibid.* 76:277, 1958. 34. Yow, E. M.: Practitioner. 182:759, 1959. 35. Yow, E. M., *et al.*: A.M.A. Arch. Int. Med. 102:948, 1958. 36. Yow, M. D., Desmond, M. M., and Nickey, L. N.: J. Ped. 54:400, 1959. 37. Yow, M. D., and Womack, G. K.: Ann. N. Y. Acad. Sci. 76:363, 1958.

Bristol LABORATORIES INC. • Syracuse, New York

PHYSICIANS
HAVE
ASKED FOR

Butapap



Combining two ingredients for a children's analgesic

Quite often, when children are administered an analgesic, a mild sedative is also indicated, to avoid the restlessness which frequently occurs as pain lessens.

In BUTAPAP, for the first time, this unique combination of drugs in easy-to-take liquid form provides a preparation that is highly useful wherever the allaying of pain or discomfort, fever, or restlessness is desired.

In BUTAPAP, the potent analgesic effect of acetyl-p-aminophenol is potentiated by the inclusion of butabarbital sodium. The resultant effectiveness against pain and discomfort and the unusual antipyretic action of acetyl-p-aminophenol are augmented by the sedative action of the butabarbital sodium, providing a preparation with wide clinical usefulness.

Each 5 cc. teaspoonful of tasty Butapap contains

PHYSICIANS PRODUCTS CO., INC.
PETERSBURG, VIRGINIA

3316

CLINICAL SAMPLES SENT UPON REQUEST

when a tranquilizer is warranted...

The extended usefulness of TENTONE is readily apparent

TENTONE® Methoxypromazine Maleate is a new, distinctive phenothiazine... highly active ...for general use in mild and moderate emotional and psychosomatic disorders.

TENTONE elicits a striking, positive calming response[1,2]...with marked reduction of psychic disorientation, and low risk of blood, liver or other organic toxicity and intolerance.[1-4]

TENTONE parallels the weaker ataractics in low incidence of side effects. Freedom from induced depression is apparently even greater.[5]

TENTONE provides a broadly adaptable dosage range (30 to 500 mg. daily) to permit maximum control in cases of varying severity.

TENTONE is also indicated to relieve emotional stress in surgical, obstetric and other hospitalized patients.

RHEUMATIC DISORDERS	ARTERIO-SCLEROSIS, MALIGNANCY	ALCOHOL-DRUG WITHDRAWAL
CONDITION		

Dosage: Mild to moderate cases—average starting dose, one 10 mg. or one 25 mg. tablet three or four times daily. *Moderate to severe*—average starting dose, one 50 mg. tablet four times daily. *Supplied:* 10 mg., 25 mg., and 50 mg. tablets.

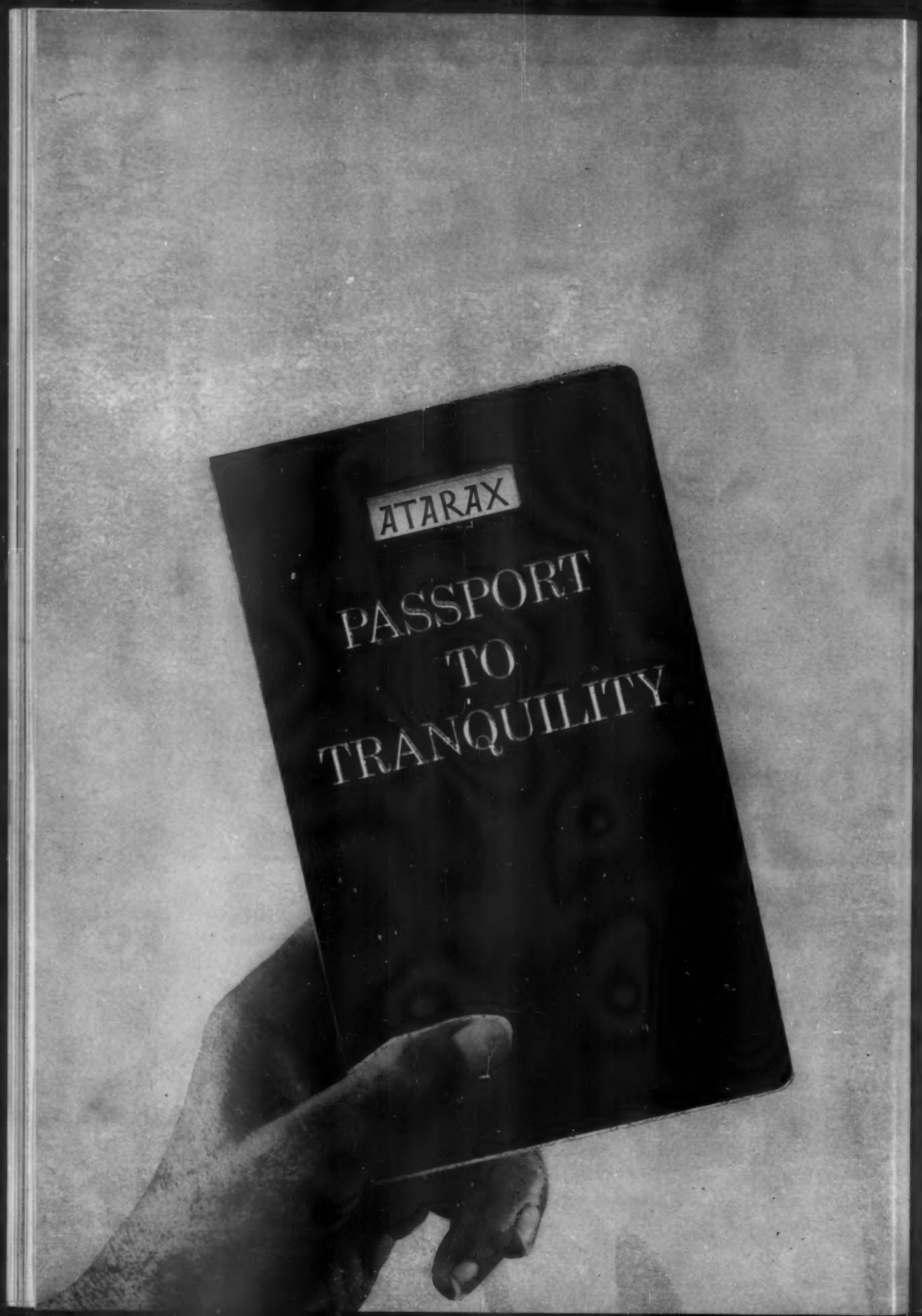
1. Bodi, T., and Levy, H.: Clinical report, cited with permission. 2. Wetzler, R. A., and Phillips, R. M.: Clinical report, cited with permission. 3. Prigot, A.: Clinical report, cited with permission. 4. Gosline, E., *et al.*: *Am. J. Psychiat.* 115:939 (April) 1959. 5. Turvey, S. E. C.: Clinical report, cited with permission.

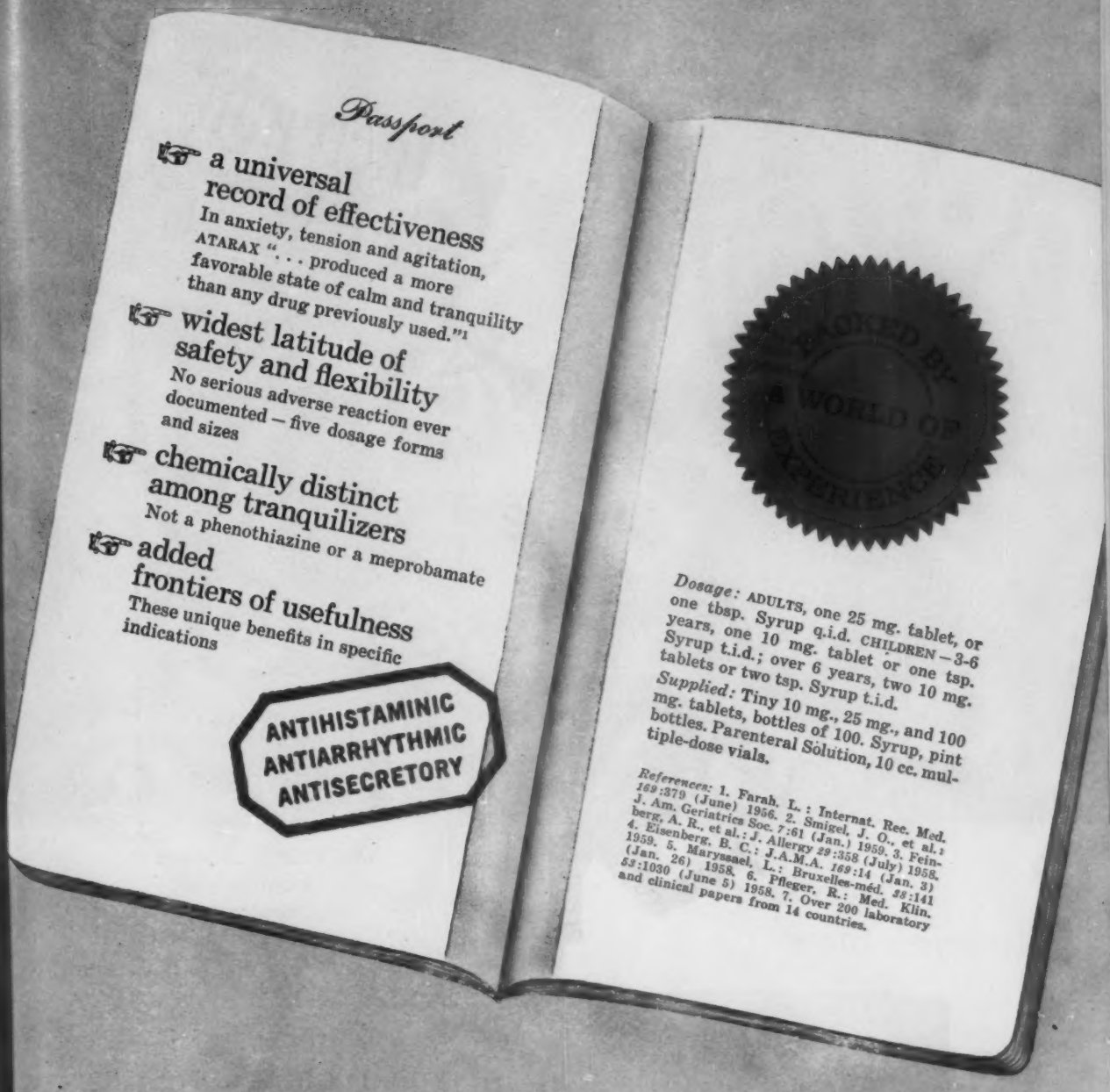
Tentone

Methoxypromazine Maleate

Lederle

LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York


ATARAX
PASSPORT
TO
TRANQUILITY


Passport
a universal record of effectiveness
In anxiety, tension and agitation, ATARAX "... produced a more favorable state of calm and tranquility than any drug previously used."[1]
widest latitude of safety and flexibility
No serious adverse reaction ever documented – five dosage forms and sizes
chemically distinct among tranquilizers
Not a phenothiazine or a meprobamate
added frontiers of usefulness
These unique benefits in specific indications
ANTIHISTAMINIC
ANTIARRHYTHMIC
ANTISECRETORY
ENDORSED BY A WORLD OF EXPERIENCE
Dosage: ADULTS, one 25 mg. tablet, or one tbsp. Syrup q.i.d. CHILDREN – 3-6 years, one 10 mg. tablet or one tsp. Syrup t.i.d.; over 6 years, two 10 mg. tablets or two tsp. Syrup t.i.d.
Supplied: Tiny 10 mg., 25 mg., and 100 mg. tablets, bottles of 100. Syrup, pint bottles. Parenteral Solution, 10 cc. multiple-dose vials.
References: 1. Farah, L.: Internat. Rec. Med. 169:379 (June) 1956. 2. Smigel, J. O., et al.: J. Am. Geriatrics Soc. 7:61 (Jan.) 1959. 3. Feinberg, A. R., et al.: J. Allergy 29:358 (July) 1958. 4. Eisenberg, B. C.: J.A.M.A. 169:14 (Jan. 3) 1959. 5. Maryssael, L.: Bruxelles-méd. 38:141 (Jan. 26) 1958. 6. Pfleger, R.: Med. Klin. 53:1030 (June 5) 1958. 7. Over 200 laboratory and clinical papers from 14 countries.

ATARAX®

PASSPORT TO TRANQUILITY

(brand of hydroxyzine)

Rx PFIZER

New York 17, N. Y.
Division, Chas. Pfizer & Co., Inc.
Science for the World's Well-Being

Lederle LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

basic in exchange

basic in
cold control

CORICIDIN® Tablets

formula

chlorprophenpyridamine maleate	2 mg.
aspirin	0.23 Gm.
phenacetin	0.16 Gm.
caffeine	30 mg.

SCHERING

L-089

SCHERING CORPORATION • BLOOMFIELD, NEW JERSEY

V-CILLIN K®—twice the blood levels of oral potassium penicillin G

Infections resolve rapidly with V-Cillin K. All patients absorb this oral penicillin and show therapeutic blood levels with recommended doses. The high blood levels of V-Cillin K also offer greater assurance of bactericidal concentration in the tissues —a more dependable clinical response.

Dosage: 125 or 250 mg. three times daily.

Supplied: In scored tablets of 125 and 250 mg. (200,000 and 400,000 units).

Also available

V-Cillin K, Pediatric: A taste treat for young patients. In bottles of 40 and 80 cc. Each 5-cc. teaspoonful provides 125 mg. of V-Cillin K.

V-Cillin K® Sulfa: Each tablet combines 125 mg. of V-Cillin K with 0.167 Gm. each of sulfadiazine, sulfamerazine, and sulfamethazine.

V-Cillin K® (penicillin V potassium, Lilly)
V-Cillin K® Sulfa (penicillin V potassium with triple sulfas, Lilly)

ELI LILLY AND COMPANY • INDIANAPOLIS 6, INDIANA, U. S. A.

The Virginia
MEDICAL
MONTHLY

November, 1959
VOL. 86, No. 11
Whole No. 1290

Guest Editorial....

Insect Sting and Bite Reactions

Their Seriousness and Management

THE RECOGNITION and the treatment of severe constitutional or anaphylactoid types of reactions following stings and bites of insects are keenly appreciated after one sees such a patient. The recognition of these severe reactions is not of recent date, as approximately 150 years ago three classes of clear-cut bee sensitivity were reported. However, in the past few years there has been an increased recognition of these patients, as evidenced by news releases and case reports in both the lay press and medical publications. Only in recent years has the mechanism of this reaction and the importance of prompt treatment been appreciated. As a result of this, we have been able to reduce the number of patients experiencing these constitutional reactions and also the mortality rate.

A number of interesting observations are made regarding the stinging insects. The honeybee has a barbed stinger, and when she stings, her stinger and venom sac are retained in the sting site. In contrast, the hornets, yellow jackets, bumble bees and wasps do not leave their stinger or venom sacs, as they have a non-barbed stinger. The stinger should be immediately removed after a bee stings, since it takes approximately two or three minutes for the bee to inject the whole amount of venom through the fine stinger, as the smooth muscle wall of the venom sac continues to contract and force in the venom. The quicker the venom sac is removed, the less venom will be injected.

To date there are well over thirty insects that have been reported in literature as a direct cause of allergic disease. The character of reaction and severity may vary in the different patients, as follows:

Urticaria
Angioneurotic Edema
Generalized Aching and Swelling of the Joints
Asthma
Generalized Itching
Edema of the Larynx
Headaches
General Malaise
Loss of Consciousness
Shock
Dyspnea
Abdominal Cramps
Vascular Collapse
Schönlein-Henock Syndrome
Tightness of the Chest
A Sensation of Impending Death

It is desirable to classify the clinical severity of sting and bite reactions as follows:

Grade I —A slight general reaction is characterized by a generalized urticaria, itching, malaise and anxiety.

Grade II—A general reaction, in addition to the symptoms in Grade I, includes two or more of the following: generalized edema, sneezing, constriction in the chest, dizziness, abdominal pains, nausea or vomiting.

Grade III—In addition to symptoms in Grades I and II, two or more of the following: dyspnea, dysphagia, marked weakness, confusion, a feeling of impending disaster.

Grade IV—Two or more of the following, in addition to reactions of Grades I, II, and III: cyanosis, fallen blood pressure, collapse, incontinence, unconsciousness.

During the past two years some fifty-three patients have come under our observation, exhibiting allergic reactions of varying clinical severity, which have fallen into one of the above groups. As of this date, we have attempted to desensitize these patients. Approximately two-thirds of the patients who have received immunization treatment with extracts or antigens prepared from bees, yellow jackets, wasps, hornets, mosquitoes, ants and May fly, have subsequently been stung or bitten, and we have not observed any severe constitutional reactions in this group of cases. In a number of instances these patients have had multiple stings or bites.

We cannot over-emphasize the important of recognizing these patients and instituting prompt and effective treatment, as well as explaining to the patient or his family the potential or sometimes fatal reaction that may follow subsequent stings or bites. Too often the doctor or the patient may minimize the reaction, especially if the physician has not seen the patient during such a reaction.

It should further be appreciated that the proper technique of testing a patient is to be cautiously followed, as these tests are not without danger, and one may precipitate a constitutional reaction if adequate precautions are not taken. These patients should be prepared to remain under the observation of the doctor for at least an hour following the test procedures. The tests include not only scratch tests, but also intracutaneous tests, with serial dilutions of the varied extracts employed in concentrations of from 1 to 1/1,000,000,000, and proceeding with the more concentrated dilutions in multiples of 10, until the 1 to 10 and concentrated extracts are employed. The location of these tests should be on either the patient's arm or leg, in order that the tourniquet may be applied proximal to the test site should a reaction occur.

The schedule and proper dilution of antigens for hyposensitization vary according to the severity of the patient's reaction, the degree of skin tests, and the experince that one antigen at times may be more potent than others. The interval between initial injections is daily, and subsequently lengthened to several times a week, and finally to weekly or intervals of every two weeks, when a maintenance dose is reached.

It is the physician's responsibility to instruct the patient in the emergency treatment of insect stings and bites. This treatment may be divided into two categories:

Local Treatment: This includes application of either sodium bicarbonate or household ammonia, or ice cold compresses.

Systemic Treatment: This consists of the application of a tourniquet proximal to the insect sting or bite. If multiple stings or bites occur, more than one tourniquet should be used. The patient should be provided with a sympathicomimetic drug, such as Nephenalin or Isuprel tablets, with instructions to place one under the tongue and hold it there for five minutes before swallowing, in order that he may receive a rapid adrenalin-type of response. The patient and his family or companion should be advised as to the type of treatment employed in the event of shock, and a physician should be summoned and hospitalization should be considered. Among other drugs that may be considered individually or collectively are the following: Epinephrine Hydrochloride 1/1000 intra-muscular or intravenous routes, Dimetane Injectable or some comparable parenteral antihistamine, intravenous or intra-muscular steroid, depending upon the severity of symptoms.

Usually oral antihistamines and sympathicomimetic drugs are too slow in their action, as the critical period is immediately at hand after the sting or bite, and for the next thirty minutes. Usually those patients who survive as long as thirty minutes do not have a fatal outcome.

Not only should emergency instructions be outlined, but in addition an emergency kit should always be kept available for those patients who are subject to these severe reactions. The patient, his family, and his local physician should be acquainted with the fact that the patient is allergic to insect stings and bites, and they should also be familiar with the emergency instructions and the use of an emergency kit. Hypodermic administration of drugs may prove to be life-saving, and the doctor may wish to give such instruction, depending upon the capability of the patient or his family.

J. Warrick Thomas, M.D.

2031 Monument Avenue
Richmond, Virginia

Editor's Note: Dr. Thomas is Associate Professor of Medicine, Medical College of Virginia, and Director of the Thomas Clinic, Richmond.

Socio-Economic Problems

WALTER P. ADAMS, M.D.
Norfolk, Virginia

IT IS A GREAT PRIVILEGE to greet you at this 112th Annual Meeting of The Medical Society of Virginia. Our program is impressive and profitable, our annual renewal of friendships is always enjoyable, but our problems in the pursuit of our profession are increasing by leaps and bounds. Since you are attending the programs each day, and you are happy in old and in new friendships here, it is on socio-economic problems that I will address you.

Your Society has had a busy year as you can see from many of its Committee Reports. Fortunately, some work of the Society has been smooth and solutions for problems quickly found. In other activities your Committees have repeatedly traveled and met, in order to crystallize advice for the membership. Some problems have been insoluble.

The Annual Reports deserve more than a casual perusal. They are the guiding hands for each and every Virginia physician. Many do not realize the amount of time, thought, and energy expended by your members in developing various courses of action for the Society. I am sure each member of The Medical Society of Virginia is grateful to the Committees for their help with these problems. My plea is for more interest and more aid each year, from more and more members, and particularly from the younger ones. The problems are yours. No physician can practice without facing them, so each of us might as well lend a hand.

It is said that change is the only normal characteristic of free enterprise. The practice of medicine as we know it in these United States is still a free enterprise. It has changed astonishingly towards mechanization and third-parties in my thirty-five plus years of practice, and it will continue to change whether free enterprise continues or whether government socialized medicine overtakes us. We must not depreciate change but rather appreciate it. For instance, we enjoy and utilize the airplane and have forgotten the horse and buggy. But, just as the airplane must be guided, we should be guiding the changes in medicine. If physicians do not guide these inevitable changes in the practice of medicine, then others will—others are even doing so now.

A good physician is proud and secure in his medical knowledge and service, knowing that American medicine is the best in the world. And the American Public is justly proud of American medicine—particularly when sickness comes. But is the American Public our friend? Have they faith and understanding in us? Do they raise a finger to help us? Not with the medical profession on the defensive as it is. They think us different, and apart from business and industry, and many of the public think we should be on a government salary with free medical care for all.

It has been soberly predicted by economic experts that by the year 2017 the employment of all individuals will be through the government. It is a slow embrace. To paraphrase Pope's Essay on Man—Socialized Medicine is a monster of such frightful mien, as to be hated needs but to be seen, yet seen too oft, familiar with his face, we first endure, then pity, then embrace.

Since there will definitely be transitions in medical practice, my second plea is for them to be guided by those intimately involved, namely ourselves and our interested patient, or our direct agents. Others who seek unwarranted changes in the status of physicians for their own profit or for political gain must be thwarted. In order to emphasize the necessity of medical thinking and guidance during these economic changes, a short report on several of the more important subjects is in order. These paragraphs may not be satisfying to you at all, but should be of interest, and may be stimulating toward individual thought.

BLUE CROSS-BLUE SHIELD

We physicians must attempt to guide health and hospital insurance in the same way we have done with medical education and with improving the standards of practice. Health insurance is the present key to the economic fate of the medical profession. It can succeed only to the degree that we support it and participate. Although started for low-income groups, both Blue Cross and Blue Shield have undergone changing patterns. But they remain the

Presidential Address at the Annual Meeting of The Medical Society of Virginia, Roanoke, October 4-7, 1959.

physicians' agencies for delivering prepaid medical and hospital care controlled by physicians, and are voluntary. Their future will depend on public confidence, plus what the physician puts into them—not on the fees he and the hospitals get out of them. Without positive leadership our present voluntary hospital system faces the prospect of becoming a government system.

Congress has just enthusiastically passed the Federal employees health insurance plan and this will become law next July first. It is a payroll deductible plan for five million Government workers, with our Government paying half of a low cost comprehensive health insurance. This is not a foot, but only a toe in the door.

And some physicians go along with Federal encroachment, one reason being the lack of financial responsibility of our public. In 1957, a fourth of all Americans had no cash savings, and more than half had less than $500.00. That must be the reason the new physician president of a national Negro medical association has for declaring that "Voluntary health insurance is no answer to the medical problems of our Nation's seventeen million Negroes", and goes on to state that he favors compulsory health insurance plans such as that proposed by the Forand Bill. This physician also stated in his inaugural address that the time has come for some government agency such as the Public Health Service to care for our sick. To me this would not seem slow embrace, but a headlong rush into government medicine.

Just now there are feelers toward consolidating the Nation's eighty Blue Cross and seventy Blue Shield plans under a single organization by Federal charter. It is argued that this would hold off a government health insurance system. It would include a liberal expansion of hospital services for all income groups, with physician's fees set by relative value scales according to states, dentistry and home-care programs, and provisions for indigents through contractual arrangements with local communities. In Virginia we are fortunate in having Dr. Richard Ackart as the Director of our non-profit health insurance groups. By aiding his organization each member of this Society can be more assured of continuing the practice of medicine as we know it.

THE SENIOR-CITIZEN PROBLEM

This may well be our greatest immediate challenge for positive action. You must already know that definite local community plans for better care of the aged must be available and working by the 1961 President's Conference. Otherwise Congress will quickly be asked to add old-age Federal handouts to the money already rolling out of Washington for roads, schools, hospitals, and housing. Senator Pat McNamara's Sub-committee is now visiting representative cities in an attempt to get an overall picture of local health and welfare progress and of community responsibility for older people. No Virginia city will be visited. The political prize is the votes of the aged and those soon to be aged. The result of such type of legislation would be regimented physicians who would be told how to prescribe, all by Congressional edict. Our immediate past President, Dr. Harry Bates, was truly inspired in writing the Annual Report for his Committee on the Aging and I recommend it highly to each member for reading.

Stimulation of our local citizen groups, as well as Health and Welfare Departments, for organized action toward the better care of the aged is our next step. The goal is optimum health for each oldster. There is no one disease common to the aged. They are alike in only one way—age. Many are sick but more only need protection. Some of these are wrongly placed in mental institutions. But there will never be a legislative, nor a medical panacea for loneliness, rejection, or lack of useful things to do. Senior-Citizen centers have been started in many cities. Certain oldsters are made responsible for activities and others join in to develop new skills and duties. They can retain their independence and feel useful. The sick ones have always been cared for locally, but there must be improvement. The older generation is not neglected or badly cared for at present. It is the future which is so overpowering.

The physician has been involved because health protection for all is now assumed to be a public responsibility as much as police and fire protection. Physicians have accepted this challenge and newspapers have made the matter a major item of the year. Accordingly, Blue Shield contracts allowing only 66% of customary fees have been agreed upon in many areas, thus placing the personal profit of physicians' services second to the need for their services. Hospitals have not yielded to such reduction of charges because of being non-profit. Department stores, utilities, and filling stations have not yet been asked to remit approximately 33% of their charges because the customer is over 65. And I doubt if they will be asked.

So far we stand out in front in giving and in service, but we cannot do it all. Physicians must plan and stimulate the aid of local civic, church, and

other groups toward forming foundations and centers for the oldster. The Senior-Citizen should not become a pawn of the politicians with resulting tax money hand-outs and regimented medical care. The public has to be told that the care of the aged goes far beyond actual clinical care in hospitals and physicians' offices.

THIRD-PARTY MEDICINE

As medical costs have risen third-party plans have come into being. Today a large part of any practitioners income is paid by third-parties, so none of us can disdain participation or interest in them. These include in varying degrees industrial insurance, both voluntary and compulsory health insurance, the labor health plans, V.A., Medicare, Government rehabilitation projects, and many others, even down to mandatory typhoid inoculations for migrant farm labor. None of these alone comprise socialized government medicine. But there is a danger in any of these third-party plans which can eventually dictate medical policy and medical financing. When such dictation is complete and from the Government, we then have arrived at socialized medicine, with its loss of physician responsibility and of quality.

The public must be told of the harm possible from many existing oragnizations, some governmental, and from the too many unqualified people who wish to interfere with the physician-patient relationship for their own financial gain. The public must be shown the necessity of a solid front against these forces. Medical organizations and individuals will have to do this showing. Our voting public must be told that runaway costs and the power of the purse have resulted in a poor grade of medicine in many other countries. Congress must be shown that the public health is at stake. Furthermore, physicians cannot carry this torch alone.

To combat gradual inroads by these third-party plans, it has been recommended that any physicians accepting employment by a third-party plan should have a contract guaranteeing to him his own decisions in patient care, and guaranteeing the ethics of the profession. For any proposed further inroads toward government medicine it is up to the public to vote as they choose, but it should be an informed public. In informing the public on third-party medicine emphasis must be on the voluntary plan as against the government plan. The government plans which are mandatory by age or physical condition are but stepping stones to government medicine.

Some State Societies have adopted a Standard Relative Value Scale to assist members in setting fees. The most recent is our neighbor the District of Columbia. Such information gives a basis for the worth of the service, but departs from the custom of charging according to the patient's ability to pay. All insurance and prepaid medical plans have encouraged the adoption of a relative value scale, and its usefulness to them is apparent. Major medical insurance of $10,000.00 for one illness with say $500.00 deductible, has proven a splendid supplement to Blue Cross-Blue Shield plans and is relatively cheap. This sets no fee schedule of its own but must rely on the use of a relative value scale. With no stability of fees there can be no stability of premiums for the patient, and the companies will cease to offer it.

In addition, the patient finds a relationship between different medical services by comparison in units. Thus distinction can be made between the value of services for a normal delivery or a Caesarean Section, or between an office visit and a home visit, and one schedule has even listed a "twenty-minute office visit necessitating professional care over and above the routine office visit." The use of such a scale is an important facet in the steady but constant change of medicine toward mechanization.

Some Virginia specialty groups have already anticipated adoption of such a scale. I predict some component societies will quickly accept such a plan, and that others will firmly avoid the issue. The AMA is presently conducting regional conferences on this subject. Your Medical Service Committee will appraise relative value scale usage during the coming year of the Society.

Other problems not so important will have to be mentioned in sentences only and not by paragraphs.

The AMEF should be supported individually or collectively or both, but support it we must. It is the first organization through which a profession has demonstrated a realization of responsibility for the financial welfare of its schools. Be sure you have helped this year.

In Virginia the liaison between the legal and the medical professions has been a happy one. An excellent "Standard of Principles" has been adopted at State level and by many local Medical and Bar Associations. We are fortunate in having a low State malpractice loss rate, and this in reflected in a recent 12% reduction to all group malpractice policyholders of our Society.

The AMA now has new Disciplinary Committees working at the National level. This is mentioned only to remind that if local administration of these

problems were adequate, then National level study would be superfluous.

In connection with the many lay Voluntary Health Agencies to fight specific diseases, our main interest should be to have qualified medical advice within their executive councils. Without medical advice they assume the part of a third-party intruder. There are some National groups who insist that local physicians must not have a voice, but we should be persistent in requesting the privilege of helping to guide their policies and expenditures. Also to be mentioned are some National agencies, each of whom insist on not allowing United Fund Drive participation. In either the organized or free-for-all type of collection, physicians can well help civic groups and guide the community charity dollar.

There is excellent liaison between the Society and our Virginia local Health Boards, as well as with the parent State Board of Health, so well guided by Dr. Mack Shanholtz.

The Virginia Council on Health and Medical Care is no problem to us. It is a well-organized allied group with a number of missions related to medicine. Its Director, Mr. Edgar Fisher, has been highly complimented for his work and the Society is proud of his achievements.

Social Security for all physicians I consider an intramural problem on which our membership will be polled soon again. The information derived from any poll is proportionate to the special knowledge of the pollee on the subject. Part of our Wednesday morning program includes exceptional speakers considering each side of this topic for you.

PUBLIC RELATIONS

And last but most important of these problems is Public Relations. In medical circles this is often confused with press-agent work. It is definitely something that we want others to do for us. The general goal is better communications between our public and our profession. The best thing Khrushchev said while over here was that communications between the heads of nations was important. Our lack of communication with the public has placed our profession on the defensive. There is lack of sympathetic thought for us, and at times we lack sympathy for the public.

It is not enough for us to practice the best medicine in the world—we must take time to tell our public and our politicians how and why to continue it. The public must be processed into medical thinking and not just medical receiving. This means more physicians will have to assume more civic responsibility. We are not understood when we speak directly for the survival of the private physician. But we can and will realize results when we place the patients' interests ahead of our economic gain, or our own convenience. The single physician who treats each of his patients with intelligent consideration is the best public relations man we have.

Of more than passing interest is the employment of a Public Relations firm by the New York State Medical Society for a survey. We must not hold our breath for the answer. Instead we should apply our best public relations skill with each patient we see. A poll trend to give us heart in estimating our stand with the public was released by AMA last week. More parents wanted their sons to enter medicine than any other occupation. This might only mean that the public thinks physicians have an easy time of it. I would prefer to think it means more confidence in our profession.

In closing, I wish to pay tribute to our loyal Headquarters Staff for tireless work beyond the call of duty. I have learned the full extent of their efficiency during my term. Our Secretary, Mr. Robert Howard, is of National prominence in several organizations now and we are justly proud of him, and of our whole Staff. Our Virginia Medical Monthly, under the able management of Miss Spencer Watkins, has a splendid rating.

Having been a Delegate and a Councilor for some years I thought I knew the Society's activities well, but this year I have continued to learn as I have given. I have many thanks for our Councilors, for our Delegates, and for our Woman's Auxiliary, and also for each member who served you in any way this year. And finally I thank my one and only boss who tolerated the President of your Society for a whole year.

My term of office ends Wednesday. It is appropriate that your incoming President greet you now. He has my best wishes for the coming year, and always will have my help.

---

712 Botetourt Street
Norfolk, Virginia

Cancer of the Laryngo-Pharynx

Newer Methods of Treatment

WILLIAM R. NELSON, M.D.
Richmond, Virginia

THIS PAPER deals not with long term survival rates following surgical therapy of squamous carcinoma of the laryngo-pharynx, but with preliminary studies on the extended operative attack upon advanced tumors of this variety, wherein newer methods of extirpation have been employed. The regional anatomy to be outlined consists of that brief distance between the tongue base and the entrance to the trachea and cervical esophagus. Many tumors found in this area have on first inspection grown to such size that often the exact area of primary origin is, to say the least, obscure. Therapy through the years has varied from local resection and irradiation to combined cervical node dissection and total laryngectomy with partial pharyngectomy.[4,5] Reconstructive problems related to the continuity of the food passage are often complex and multi-staged procedures may of necessity have to be employed. Poor survival statistics from previously utilized techniques have prompted the more radical methods to be described. The lack of a suitable, one-staged operation which would obviate prolonged reconstruction of the pharynx and cervical esophagus has stimulated the application of the animal experiments to be mentioned.

Figure 1 shows the anatomy of the laryngo-pharyngeal area. One can see that there are four main areas of involvement by tumors. The base of the tongue is first noted, followed by the intrinsic larynx (vocal cords) which can be broken down into supraglottic, cordal and subglottic regions. The extrinsic laryngeal region, composed of the epiglottis, the aryepiglottic folds, the arytenoids and the pyriform sinus, is the third area. Finally we come to the pharyngeal wall which consists of those mucosal surfaces extending upward from the pyriform sinuses laterally and the cervical esophagus posteriorally. "Hypopharynx" is a term which will not be utilized in this discussion since it does not refer to any specific area. Cervical esophageal neoplasms will not be mentioned in this paper, as they actually make up quite a different clinical entity. Tumors invading the laryngo-pharynx from the outside will be included, however.

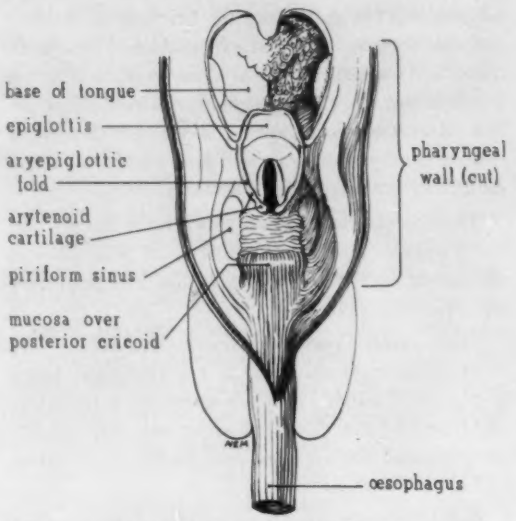


Fig. 1. Anatomical diagram showing important areas of the laryngo-pharynx.

The pathology of this particular regional tumor area is well known. These squamous carcinomas are usually not as well differentiated as lesions of the anterior oral cavity. The decision between surgery and irradiation, however, cannot be based upon the degree of differentiation of the individual neoplasm.

The symptoms and signs in tumors of this area may be very few in the early stages, except when the cords are primarily involved. "The silent area" well describes this extra-laryngeal region and because of the paucity of early findings, many tumors reach great size before they reach the surgeon. It is interesting to note, also, that approximately one-third of these lesions result in cervical metastases prior to the onset of laryngo-pharyngeal symptoms.

It goes without saying that all patients with the

From the Department of Surgery, Medical College of Virginia.

NELSON, WILLIAM R., M.D., *Associate in Surgery, Medical College of Virginia; Former trainee of the National Cancer Institute.*

Presented at the annual meeting of The Virginia Surgical Society, Williamsburg, May 2, 1959.

slightest suspicion of laryngo-pharyngeal cancer should have mirror examination performed immediately. Biopsy material may be obtained with ease using this indirect method of visualization if one has a curved biopsy forcep at hand. The use of aspiration biopsy is invaluable in making the diagnosis of masses in the neck when no definite primary lesion can be identified.

Treatment is the main topic for analysis at this time. As was mentioned in the introductory remarks, irradiation therapy has been one of the most popular methods of therapy employed in the lesions under discussion.[1] Only in the past fourteen years has radical surgical extirpation come to the fore, this being possible through the many modern supportive aids which have resulted in so many advances in the field of surgery.[4] Early intrinsic cancer of the larynx, it must be conceded, can be treated with almost equal success by irradiation or by surgery. When one has to deal with advanced lesions of the cords and with extra-laryngeal tumors consideration must be given to the more radical surgical techniques. The frequency of lymph node metastases from these tumors has certainly been one of the main factors stimulating the modern trend toward surgical extirpation.

Figure 2 is a graph showing the five-year survival

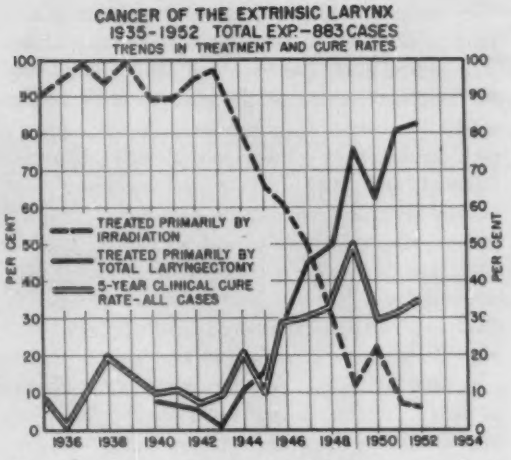

CANCER OF THE EXTRINSIC LARYNX
1935-1952 TOTAL EXP.-883 CASES
TRENDS IN TREATMENT AND CURE RATES
PER CENT
TREATED PRIMARILY BY IRRADIATION
TREATED PRIMARILY BY TOTAL LARYNGECTOMY
5-YEAR CLINICAL CURE RATE-ALL CASES
1936 1938 1940 1942 1944 1946 1948 1950 1952 1954

Fig. 2. Five year cure rates and treatment trends at Memorial Cancer Center, New York, New York (from "Symposium on Cancer of the Head and Neck" page 308, published by The American Cancer Society 1958).

different therapeutic techniques in each instance.

Table 1 shows a compilation of statistics on nine cases of cancer in and around the laryngo-pharyngeal area, exclusive of tumors of the cervical esophagus. We can see from these data that our approach for advanced cordal lesions and for extra-laryngeal tumors is generally one of combined radical neck dissection, total laryngectomy with or without partial

TABLE I

SQUAMOUS CARCINOMA OF THE LARYNGO-PHARYNGEAL REGION

Cases	Diagnosis	Operation	Post-Op. Course
2	Vocal cords, advanced	Neck dissection, laryngectomy	Uneventful
1	Pyriform sinus	Neck dissection, laryngectomy	Died free of disease, coronary 8 mos.
1	Epiglottis, advanced cerv. node met.	Neck dissection, laryngectomy followed by 2nd neck dissection	Died of neck recurrence 9 mos. after 2nd neck
1	Epiglottis with bilat. cerv. node met.	Bilat. neck dissection, total laryngectomy	Uneventful. Doing well 15 mos.
1	Base of tongue, epiglottis & 2nd lesion pharynx	Bilat. neck dissection, total laryngectomy, staged reconstr.	Uneventful. Doing well during reconstruction
1	Pyriform sinus, advanced	Neck dissection, tot. laryngectomy with graft-stent reconstr.	Died loc. recurrence 8 mos. post-op.
1	Base of tongue, recurrent post-x-ray, with bilat. cerv. node met.	Bilat. neck dissection, sub-total glossectomy, part. mandible.	Uneventful
1	Neck, recurrent post-neck dissection, post-x-ray.	Rad. resection, tot. laryngectomy, carotid resect. & graft, pedicle repair	Uneventful

rates obtained at Memorial Hospital in New York City for extrinsic laryngeal cancer through the years.[3] Changes in the popularity of surgery and irradiation are apparent. With these results in mind, the following cases are briefly outlined showing varied clinical settings and the application of somewhat

pharyngectomy. Bilateral neck dissections have been done in three instances and in one case, a recurrent cancer in the neck, the extra-laryngeal region was invaded from without. There have been no operative deaths in this series, but two patients have developed pharyngeal fistulae which closed within a period of

three weeks following their onset. Two patients have subsequently died of their disease, one having undergone radical neck dissection and total laryngectomy for advanced cancer of the pharynx with a huge cervical metastasis. A metastasis to the opposite neck treated by a second radical neck dissection followed, and he died of cervical recurrence nine months after the last operative procedure. A second patient, who underwent radical neck dissection and total laryngectomy for extra-laryngeal cancer, did extremely well postoperatively, but later died suddently without clinical evidence of recurrence. The third death, to be described in some detail, was in a patient who developed recurrence nine months following surgery. Several cases listed in the table will be outlined more completely, and representative photographs will be used to point out operative and post-operative situations.

Figure 3 shows the post-operative condition of a

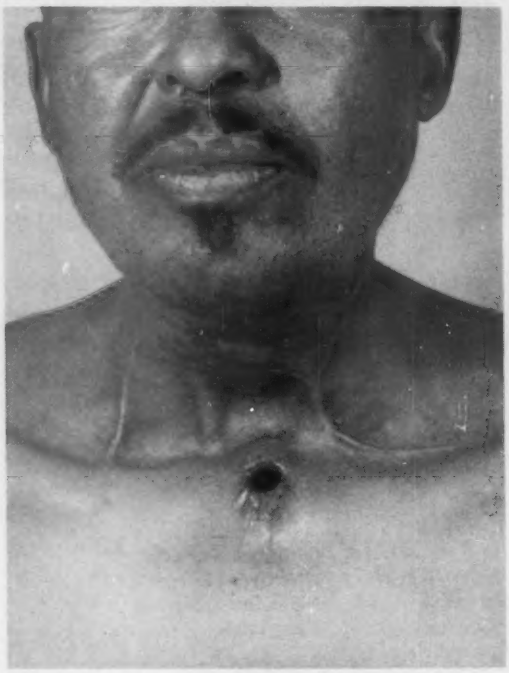


Fig. 3. R.S. (50 year old colored male) fifteen months after simultaneous bilateral radical neck dissection and total laryngectomy for carcinoma of epiglottis with bilateral cervical metastases.

patient who underwent bilateral radical neck dissection with preservation of one internal jugular vein plus total laryngectomy for a fungating squamous carcinoma of the epiglottis. It is interesting to note that this man's primary was missed prior to his coming to the Medical College of Virginia. He underwent wide excision of a large cervical metastasis at another hospital after he came in complaining of a mass in the neck. Squamous carcinoma was found in the surgical specimen, and he was referred to the M. C. V. Tumor Clinic for follow up. Mirror examination demonstrated the epiglottic cancer and the operative procedure mentioned was carried out. Wide excision of the left neck scar was necessary and it is interesting to note that squamous carcinoma was found in the skin at the site of the previous node excision. This patient is now fifteen months post-operative and shows no evidence of recurrent or metastatic cancer. He is swallowing well and is taking esophageal speech lessons.

In Figure 4 the post-operative condition of a patient who underwent surgery for an extensive extrinsic laryngeal cancer is demonstrated. Bilateral cervical metastasis were seen preoperatively in addition to an extensive fungating cancer involving the epiglottis and tongue base. At surgery a second primary lesion was found to involve the posterior pharyngeal wall. This man underwent bilateral radical neck dissection with preservation of one jugular vein, total laryngectomy and partial pharyngectomy. The proximal pharyngeal defect was closed as a blind pouch to obviate salivary drainage. The patient is now undergoing reconstructive surgery and expectorates all salivary secretions. In spite of this unpleasant situation, he is doing extremely well and is looking forward to total rehabilitation.

In Figure 5 the surgical specimen removed by neck dissection, total laryngectomy and partial pharyngectomy for extensive pyriform sinus cancer is seen. Because of the resulting massive pharyngeal defect, a stainless steel wire mesh stent wrapped with a split thickness skin graft was used for immediate reconstruction.[2] (Fig. 6) The patient swallowed soft food during the eight months prior to the development of local recurrence which ultimately led to her demise. Further studies are being carried out in the surgical research laboratory at the Medical College of Virginia in the search for a more suitable prosthetic replacement for the pharynx and upper cervical esophagus. Figure 7 reveals the excellent regrowth of epithelium obtained when a portion of a dog's cervical esophagus was carefully replaced with a plastic tube. Partial stenosis still occurs in the majority of these animals but it is hoped that through further studies an improved method will be worked out in order to obviate the less than satisfactory technique presently used in humans.

Figure 8 depicts a patient who underwent bilateral radical neck dissection with resection of both internal jugular veins, partial mandibulectomy and subtotal glossectomy for an extensive cancer of the base of the tongue which had failed to respond to irradiation therapy. A portion of the epiglottis was also removed but the uninvolved larynx was preserved. This patient shows no evidence of recurrence six months post-operatively but is not swallowing well enough to allow removal of the feeding and tracheostomy tubes.

The post-operative result in a patient with recurrent squamous carcinoma of the neck developing following radical neck dissection is revealed in Figure 9. In another hospital this individual had

Fig. 4. J. G. (49 year old white male) four months after bilateral radical neck dissection and total laryngectomy with partial pharyngectomy for two separate squamous carcinomas with bilateral cervical metastases. (The parallel scars in the left pectoral area represent the borders of the delayed pedicle flap which is to be used in pharyngeal reconstruction.)

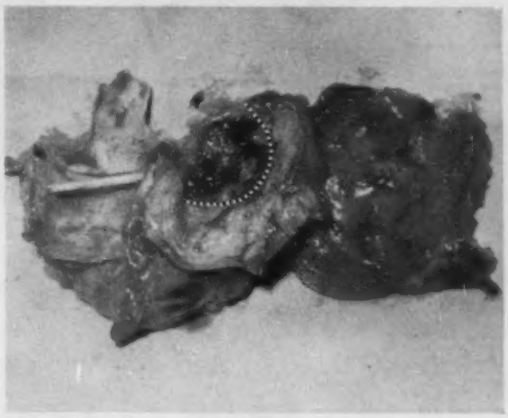


Fig. 5. Surgical specimen (removed by radical neck dissection and total laryngectomy plus partial pharyngectomy) from W. J. (57 year old colored female) showing the extensive squamous carcinoma of pyriform sinus.

Fig. 6. Operative field (skin graft-covered wire mesh stent is outlined) after removal of specimen shown in Figure 5. Sutures mark junction of graft and cervical esophagus. The stent's pharyngeal anastamosis is hidden from view in the upper portion of the field.

undergone successful irradiation of a cancer of the floor of the mouth but developed recurrence in the

Fig. 7. Autopsy specimen of dog's laryngo-pharynx and esophagus showing the area of epithelial growth following plastic tube replacement. Note the stenotic distal anastamotic site as indicated on the right.

Fig. 8. C. N. (65 year old white male) four months after bilateral radical neck dissection (including removal of both internal jugular veins), subtotal glossectomy and partial mandibulectomy for extensive carcinoma of tongue with bilateral cervical metastases. Note the almost complete absence of facial swelling.

Fig. 9. M. A. (46 year old white female) two months following radical resection of recurrent post neck dissection carcinoma which involved the common carotid artery. The teflon arterial replacement can be seen curving beneath the skin just posterior to the tube pedicle.

upper neck following a neck dissection for subsequent metastasis. Irradiation therapy, given follow-

ing the neck dissection and later, also, to a postoperative recurrence in the upper neck, had failed to halt the development of an ulcerated neoplasm involving the common carotid artery. At the Medical College of Virginia wide extirpation had to be performed with removal of the carotid bifurcation and upper common carotid artery, plus laryngectomy. The knitted teflon arterial replacement can be seen in the photograph curving beneath the skin posterior to the tube pedicle which was elevated from the upper chest to cover a large soft tissue defect. This patient has subsequently undergone division of the pedicle and and is free of disease five months following surgery.

Conclusion

In this brief presentation newer methods of surgical management in advanced cancer of the laryngopharynx have been presented. In other centers such an all out surgical attack has resulted in an impressive improvement in patient survival. It is hoped that eventually our long term cure rates will compare favorably with those of Martin, Shaw and others. In the meantime, a continuation of this extirpative approach seems warranted in the treatment of these deadly neoplasms.

References

1. Cantril, S. T.: Radiation Therapy in Cancer of the Larynx: A Review. Am. J. of Roentgenol. 81: 456-474, 1959.
2. Edgerton, M. T.: The Value of Free Skin Grafts in Reconstruction of the Cervical Esophagus or Pharynx. Proceedings of the Third National Cancer Conference. 1957. J. B. Lippincott Company, Philadelphia.
3. Martin, H.: Discussion at Symposium on Cancer of the Larynx. Symposium on Cancer of the Head and Neck. American Cancer Society Inc. p. 308, 1957.
4. Martin, H. et al: Neck Dissection. Cancer 4: 441-499, 1951.
5. Morfit, H. M.: Surgical Treatment of Cancer of the Extrinsic Larynx and Hypo-pharyngeal Walls. Surgery 37: 229-241, 1955.
6. Shaw, H. J.: Radical Surgery in Cancer of the Extrinsic Larynx and Laryngopharynx. Ann. Royal College of Surgeons of England 21: 3-31, 1957.

Medical College of Virginia
Richmond, Virginia

"Silent" Heart Attack

Coldness of one foot suddenly occurring after an operation may be a sign of a "silent" heart attack. The coldness is the result of a circulatory block in the leg, caused by a blood clot carried from the heart, Dr. Nathan Frank, Jersey City, said in the July 4 Journal of the American Medical Association. He believes that some sudden postoperative deaths attributed to pulmonary embolization (blood clots originating in the artery leading to the lungs and moving to the heart) may actually be the result of silent myocardial infarctions.

Heart attacks after surgery for some other ailment may pass unnoticed because the pain is thought to be associated with the surgery.

Whenever a person suddenly develops a coldness of one foot 4 to 21 days after surgery, silent myocardial infarction should be considered as a cause.

In reporting three cases of cold foot following surgery, the syndrome had not been previously described.

It is "of great clinical significance," because, if unrecognized, it may cause death, especially with the trend to early ambulation after surgery.

He recommended that patients be questioned daily about the presence of pain and coldness in the foot and calf. In addition, all patients should be given an electrocardiographic examination before surgery to determine the presence of old myocardial infarctions. If they are present, precautions against the development of embolism can then be taken.

Dr. Frank is associated with the Jersey City Medical Center and Seton Hall College of Medicine and Dentistry.

Experience With Long-Term Anticoagulation

FRANK E. TAYLOR, M.D.
CHARLES L. CROCKETT, Jr., M.D.
R. EARLE GLENDY, M.D.
Roanoke, Virginia

THE PURPOSE of long-term anticoagulation is to delay the disabilities or fatal conclusions from thromboembolic episodes. Since the discovery of Dicumarol by Dr. Karl Paul Link and his associates in 1941, the Coumarin derivatives have found a wide field of usefulness both for short- and long-term anticoagulation.

We have been using anticoagulants on a long-term basis for approximately seven years, and for four years Coumadin as the drug of choice. In this four year period since we have been using Coumadin we have had over one-hundred patients on treatment and at the present time we are actively carrying fifty-five.

Naturally all other recommended forms of treatment are carried out along with anticoagulant therapy.

We do not feel our small series lends itself to statistical analysis, and we refer you to the work of Wright,[1] Tulloch,[2] Foley,[3] Nicholson,[4,5] Shapiro,[6,7] and others for more exhaustive study.

The indications as set forth by Dr. Wright,[1] et al. are as follows, with the number of patients we have in each disease category listed to the right:

1.	Coronary disease	31
	a. Coronary thrombosis with myocardial infarction	(23)
	b. Angina pectoris or impending thrombosis	(8)
2.	Recurrent thrombophlebitis within a short period of time	5
3.	Multiple arterial occlusions if it is believed that the thrombosis or embolism is playing the causative role	4
4.	Embolization with auricular fibrillation	2
5.	Idiopathic and recurrent pulmonary embolism or thrombosis in which the original site may never be known	2
6.	Idiopathic or familial thrombosing conditions	1
7.	Recurrent cerebral insufficiency	10

Presented before the Virginia Section, American College of Physicians, Hot Springs, March 21, 1959.

In the group we have on current therapy approximately 25 per cent have combined problems, such as coronaries with cerebral insufficiency, peripheral insufficiency, pulmonary emboli, or polycythemia.

The use of anticoagulants in cerebral vascular disease has been approached with hesistancy in all quarters. The difficulty here is in determining whether there has actually been a hemorrhage of the vessel or intimal tear in which case anticoagulants would be contraindicated. Prior to anticoagulant therapy every effort should be made to rule out a gross lesion, tumor, hematoma, or cerebral hemorrhage. No anticoagulant should be used with a damaged brain, if damage is complete and progress has stopped treatment is useless. Therapy is only advantageous for the prevention or arrest of cerebrovascular disease.[8]

Those conditions for which treatment has been beneficial are as follows:

1. Basilar vertebral artery syndrome
2. Internal carotid artery syndrome
3. Small Stroke Syndrome

In all of our patients with cerebral insufficiency a very careful history, with general and neurological examinations, routine lab, urea, cholesterol, electrocardiogram, chest x-rays, skull x-ray, and spinal tap with careful measurement of pressure, protein, Wassermann and Colloidal gold, are obtained. We also obtain a neurosurgical consultation in all cases prior to the initiation of treatment, and try to decide on the necessity for arteriography, air study, and surgical repair of the vessels.

In eight patients we have had to discontinue the medication; there were four cases due to GU bleeding, two gastro-intestinal bleeding, one excessive bruising, and one patient who was going to surgery. Two of the GU bleedings were found to have renal calculi, and the two GI problems of bleeding both had duodenal ulcers. One patient had rectal bleeding which led to the diagnosis and successful removal of carcinoma of the colon.

Most bleeding at therapeutic levels has been of

minor intensity in the way of easy bruising, hematuria, or nose bleeds. Our one severe bleeding case requiring transfusion was a patient with a duodenal ulcer, and the anticoagulant probably simply exaggerated what was already destined to occur.

In this four year period of time we have had twenty-one deaths from the primary vascular diseases in the series of approximately 100 patients who have been on treatment.

The contraindications[1], or indications for cautious use of anticoagulants are:

1. Hypoprothrombinemia due to vitamin K deficiency or severe hepatic disease.
2. Vitamin C deficiency.
3. Renal insufficiency of marked degree.
4. Blood dyscrasias with bleeding tendencies.
5. Surgery, especially of the central nervous system, and other trauma with gaping openings.
6. Ulcerations or CA of the G.I. and G.U. tract.
7. S. B. E.
8. Marked hypertension.
9. The irresponsible patient.
10. The physician not interested.

The prerequisite for the institution of anticoagulant therapy requires a cooperative patient and a conscientious doctor familiar with the use of anticoagulant drugs.

Coumadin has the following properties:

1. Prompt onset of therapeutic hypoprothrombinemia (usually within eighteen hours a therapeutic effect is reached, and a maximum effect is reached in thirty-six hours). The therapeutic level will then last 120-148 hours (five to six days).
2. Ease of maintenance.
3. Fewer escape episodes. (Under control for 90 to 93% of the time).
4. Ready counteraction by vitamin K_1 Oxide.
5. Resumption of response with Coumadin without a lag after the use of vitamin K_1 Oxide.
6. May be given mg. for mg. per os, IV or IM.
7. The cost to the patient is about ten cents per day (10 mg. tablet) for the drug. A prothrombin time cost $3.00 each, and the average cost therefore figures about $9.00 per month for those patients on treatment, which includes two prothrombin times and the medication.

An attempt is made to keep the patient's prothrombin time at two to two and half times the control. Initially the prothrombin time is determined daily. We use the Quick 1 stage with simplastin. Although an effective level of therapeutic hypoprothrombinemia may persist for four to six days after the initial dose, we attempt to use a continuous maintenance therapy. The patient is therefore given 50 to 62.5 mgs. of Coumadin empirically on the initial day, and Coumadin thereafter according to the daily prothrombin time. We give smaller initial doses in those patients with heart failure, liver disease, and use somewhat of a lower scale in these patients. Schedule of treatment is begun on the third day, and is as follows:

If the patient's prothrombin time is

20 seconds or less	25 mgs. of Coumadin
21-25 seconds	12.5 mgs. of Coumadin
26-30 seconds	6.25 mgs. of Coumadin
31 seconds or more	0 Coumadin

We devised this system to obviate the necessity of the nurse calling each day for an order, and it also gives us a much better uniformity as to the time of dosage each day. Generally it will take seven to ten days to arrive at the optimum daily dosage of Coumadin. For patients being discharged on long term therapy we tend to determine the prothrombin time about two to three times a week for the first week or two, and then once a week, and gradually to one time every two to three weeks. There are no patients who are allowed to go over a three week period of time.

CONCLUSIONS

Our cases have left us with several firm impressions:

1. The patient seems to have fewer symptoms and thromboembolic episodes while on treatment. Thus there seems to be an increased exercise tolerance in those patients with angina or peripheral vascular insufficiency; episodes of cerebral vascular insufficiency seem to be less; and we have had no embolic episodes while the patients were on treatment. We have also had further evidence of the benefit of long-term therapy, and this is afforded by patients subjectively volunteering that they can note a definite increase in symptoms when it has become necessary to stop anticoagulants for dental or surgical procedures.
2. Symptoms do continue in some patients on treatment, and of course coronary thrombosis with myocardial infarctions and cerebral vascular accidents occur in spite of therapy.
3. We have had no deaths or serious disabilities due to lack of control or loss of control.

4. Bleeding has occasionally pointed to an organic lesion.
5. A very important point which we do not lose sight of is the effect of the enthusiasm of the doctor on the patient's disease. This form of therapy we realize has tremendous psychological effects we cannot measure. It also brings the patient in more routinely, and we often have been able to give prompt attention to early heart failure and impending infarcts.

SUMMARY

In summary we have found Coumadin an effective, safe, relatively inexpensive and easy drug to regulate for long-term anticoagulant therapy. Our patients do seem to have fewer thromboembolic episodes and symptoms; it affords an opportunity for closer supervision of the patient; and we have not found this a hazardous form of treatment.

BIBLIOGRAPHY

1. Wright, I. S., Bourgain, Rene-Henri, Foley, W. T., McDevitt, E., Gross, C., Burke, G., Simon, E., Lieberman, J., Symons, C., and Huebner, R.: Long-Term Anticoagulant Therapy. Circulation 9: 748-757 (May) 1954.
2. Tulloch, J. and Wright, I. S.: Long-Term Anticoagulant Therapy: Further Experiences. Circulation 9: 823-834 (June) 1954.
3. Foley, W. T., McDevitt, E., Symons, C. and Wright, I. S.: Further experience with Long-Term Anticoagulant Therapy. Arch. Int. Med. 95: 497-502 (April) 1955.
4. Nicholson, J. H., and Leavitt, T.: Coumadin (Warfarin) Sodium, A New Anticoagulant. New England J. Med. 255: 491-501 (September 13) 1956.
5. Nicholson, J. H.: Clinical Experiences with Anticoagulants: A Comparison of Coumadin (Warfarin) Sodium and Dicumarol (Bishydroxycoumarin). Angiology 8: 456-465 (October) 1957.
6. Shapiro, S.: Warfarin Sodium Derivative (Coumadin Sodium): An Intravenous Hypoprothrombinemia—Inducing Agent. Angiology 4: 380-390 (August) 1953.
7. Shapiro, S., and Ciferri, F. E.: Intramuscular Administration of the Anticoagulant Warfarin (Coumadin) Sodium. J.A.M.A. 165: 1377-1380 (November 16) 1957.
8. Clough, Paul W.: Intermittent Insufficiency of the Cerebral Arterial Circulation. Ann. Int. Med. 49: 223-228 (July) 1958.

2037 Crystal Spring Avenue, S.W.
Roanoke, Virginia

Skin Diving Is Not Healthy for Some

Skin diving may look like an adventuresome activity, but for some persons it could be dangerous. According to an article in the August issue of Today's Health, published by the American Medical Association, some five million Americans are now taking the plunge into the world under water.

The article said that skin diving makes demands on the body which are unlike those met in everyday life. For this reason it is unsuitable for persons with certain types of disorders:

—Navigating under water requires heavy exertion and those with respiratory problems or heart and blood vessel disease should not attempt it.

—Because of pressure changes which the skin diver will encounter, the ears and sinuses must be in good condition and able to equalize pressure.

—A perforated eardrum means that water will almost certainly enter the middle ear and diving should be ruled out. Ear plugs are no help in this case since they are for surface swimming only and should not be used for diving; water pressure would cause ear pain and possible injury.

The mental attitude of some persons can make skin diving a hazardous business, the article continued. Swimmers who are reckless and think it's fun to take unnecessary chances, or those who panic in emergencies, are likely to be threats to themselves and their fellow divers.

If you intend to be a skin diver, the article suggests consulting a physician beforehand to determine your fitness for diving. It's a precaution that will pay safety dividends.

The Surgical Aspects of Tumors in Infants and Children

EDWIN IDE SMITH, M.D.
Norfolk, Virginia

MALIGNANT DISEASE is exceeded only by accidents as a cause of death between the ages of five and fourteen, and malignancy is the fourth ranking factor for fatalities from one to four years of age. Even more significantly, except for congenital abnormalities, it is the only disease in these age groups which is increasing in incidence.[13] Some malignancies in infants and children are potentially curable, and the physician must strive to avoid too little treatment given too late. The problem of malignancy in children, however, has another important facet. With the increasing emphasis on the problem of cancer and its early detection, parents worry more about symptoms and signs in their children which they fear are caused by cancer. A clearer picture of malignancy and non-malignant conditions in children helps to deal with these problems without the children having too much treatment given too early.

Neoplasms in children differ in several ways from neoplasms as they occur in adults. The common sites of malignancy differ as is shown in Figure 1.[4,10]

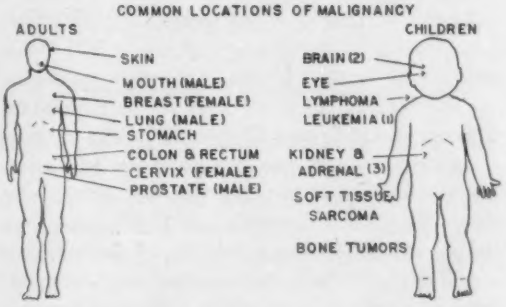


Fig. 1. Common sites of malignancy in the adult and in the child.

The common locations of adult cancer, such as the breast, cervix, stomach, or lung are extremely rare, if not unknown, in children. The type of tumor frequently seen in a given location in children differs as well. (Figure 2) Sarcomas outnumber carcinomas in infants and children. These differences have importance in practice because the fears that parents have for their children are usually based on knowledge of the signs and the symptoms of adult malignancies. In many cases the symptoms in children may arise from lesions of physiological, inflammatory, or congenital etiology.

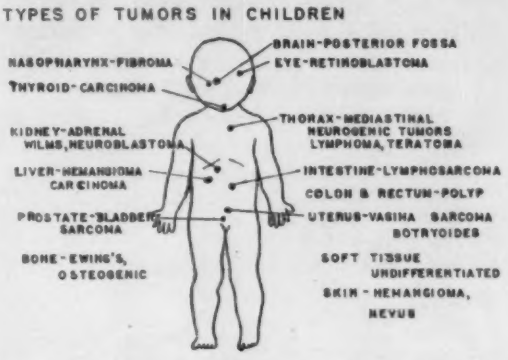


Fig. 2. Common types of tumors in children by location.

Tumors in infants and children have highly unpredictable courses. The rapid and dramatic changes seen in the course of normal growth and maturation of a child are reflected by the greatest variations in the behavior of tumors in the same ages of development. As an example of such variation, the best prognosis in the treatment of Wilms' tumors and of neuroblastomas occurs in the first year of life, as contrasted with the poorer outlook seen later in childhood.[8]

The clinical picture may not correlate with the microscopic appearance. A histologically benign tumor may grow in a vital location, and prove very deforming or even fatal, as for example, massive angiomas of the head and neck. Malignant tumors in childhood do tend to run rapid clinical courses.

Symptoms of tumors in infants and children are usually non-specific or totally lacking. Pain is rarely a presenting symptom except for the deep-seated and poorly localized pain associated with a bone tumor. Generalized symptoms are rarely seen

Presented at the Eighth Annual Scientific Assembly of the Virginia Academy of General Practice at Virginia Beach, on May 9, 1958.

early with the possible exception of the vomiting without nausea and disturbances of gait sometimes seen with brain tumors. In general the single most valuable sign of malignancy in infancy and childhood is an unexplained solid or cystic mass which can be touched or felt by the palpating hand, and which makes early diagnosis a possibility.[6] Of paramount importance to remember is the fact that malignancy in children can be cured, and in many types of tumor with better percentages of survival than can be found in the treatment of malignancies in adults.

ABDOMINAL MASSES IN THE NEWBORN

The common causes of abdominal masses in the newborn as reported by Longino and Martin[11] are shown in Figure 3. In the diagnostic work-up, one

ABDOMINAL MASSES IN THE NEWBORN
(Longino and Martin, 1958)

Benign

Kidney (Hypoplastic, multicystic, etc.)	15
Liver and Biliary	3
Gastrointestinal	3
Female Genital	1
Retroperitoneal	1

Malignant

Wilms'	1	Neuroblastoma	1
Hepatoma	1	Leiomyosarcoma colon	1

(*Pediatrics*, Vol. 21, pages 596-604, April 1958 "Abdominal Masses in the Newborn Infant")

Fig. 3

valuable examination often overlooked is transillumination of the abdomen. In a dark room cystic lesions of the abdomen can be transilluminated with a bright light in much the same way as a hydrocele. Because of the high incidence of renal lesions an examination of the urinary tract by an intravenous urogram should always be made. If a definite mass is present abdominal exploration should be performed, even in the newborn period, to rule out or to prevent malignancy, to prevent infection in cystic lesions, and to avoid obstructive symptoms from the increasing size of the mass.

One mass in the newborn, though rare, which should be remembered is the "hydrometrocolpos", an obstructed uterus which has been distended by secretions resulting from maternal hormonal stimulation. These "tumors" are sometimes associated with an imperforate hymen, but may arise from an atresia of the upper vagina with a normal hymen. The cervix cannot be visualized, only a bulging vaginal wall. The hymen or vaginal wall should be carefully incised under general anesthesia with the urethra and rectum clearly identified, even if laparotomy is necessary. With drainage the uterus will return to normal size.

Large sacrococcygeal teratomas, arising from the region of the coccyx and appearing in the newborn period or early childhood, may grow anteriorly, posteriorly, or in both directions. Tumors lying in front of the sacrum may be silent and may present with rectal or bladder obstruction. Rectal examination, which should never be omitted in any infant with bowel or bladder dysfunction, will reveal the pelvic mass. Sacrococcygeal teratomas should be removed when diagnosed since about 20% are malignant.[14] Early operation is attended by a 90% cure in the newborn group as contrasted with a 37% survival in the older children.[7]

ABDOMINAL MASSES IN INFANCY AND CHILDHOOD

One of the most important surgical tumors of infancy and early childhood is the abdominal or flank mass in which the Wilms' tumor of the kidney or a neuroblastoma arising from the sympathetic nerve tissue of the adrenal region must be considered. The tumors are usually large and frequently asymptomatic. They are often found incidentally by the mother in the course of bathing the child. The highest incidence of occurrence is around two years of age. Palpation of the mass should always be gentle to avoid dissemination of tumor cells into the venous system. The child should be worked up with a minimum of time spent on unnecessary diagnostic procedures or in observation to determine if the mass will change in size. Routine laboratory studies together with an x-ray of the chest and an intravenous urogram should be completed rapidly. The urogram can confirm the presence of a mass, and will establish the function of the kidney on the contralateral side. The clinical diagnosis can be suspected from the various physical and radiological findings, but a definite diagnosis is not important from the standpoint of proper therapy, which is immediate transabdominal exploration. The only real problem to decide is whether or not the child has a definite or even probable flank mass.

Nephrectomy and immediate post-operative radiation are the commonly accepted treatment for Wilms' tumors. Complete or partial removal of a neuroblastoma is also followed by radiation therapy which can be started on the day of surgery. Due to the sensitivity of the neuroblastoma to radiation a com-

bined therapeutic approach is necessary, but exploration even if only for biopsy should precede any radiation therapy.

The incidence of cures for Wilm's and neuroblastomas from Gross' series[8] clearly reflects the difference in prognosis with various ages. The overall survival in Wilms' tumors is 47.3%, but in infants treated under twelve months of age survival was 80% contrasted with 43% in children over twelve months. A similar difference is reported for neuroblastomas with a 29% overall cure, with 45% survival in patients treated under twenty-four months of age and 11% survival over twenty-four months of age. If a recurrence occurs, it usually, though not always, will manifest itself within eighteen months or less. Delayed recurrences occur extremely rarely. The most common site for secondary spread is the lung for Wilms' tumors, and to the liver, skeleton, or orbit for neuroblastomas.

MASSES IN THE NECK

A palpable mass in the neck presents another common problem arising in pediatric practice. Some of the conditions giving rise to such a lesion are depicted in Figure 4. Inflammatory nodes are frequently the cause of enlargements in the jugular, submaxillary, and posterior cervical regions. Branchial cleft cysts arise along the anterior border of the sternomastoid muscle, while thyroglossal tract remnants develop along the midline. Benign tumors such as epidermoid cysts, dermoid cysts, and cystic hygromas occur throughout the neck.

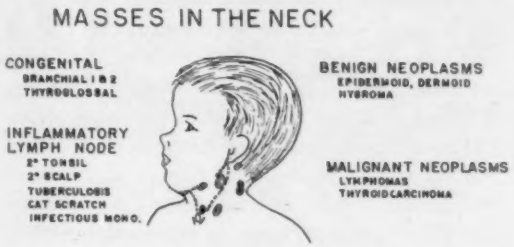


Fig. 4. Masses in the neck of children.

Two interesting lesions seen in the infant are fibromatosis or a hematoma of the sternomastoid muscle, and secondly the brawny swelling of the skin and subcutaneous tissue overlying the mandible involved with infantile cortical hyperostosis, also known as Caffey's Disease. The swelling associated with fibromatosis of the sternomastoid muscle often appears at two to three weeks of age as a hard mass in the lateral region of the neck. Because the mass usually regresses spontaneously non-operative observation is indicated. Care must be taken to prevent the developemnt of a torticollis by carefully followed exercises and physiotherapy. Infantile cortical hyperostosis may occur in a number of locations other than the mandible, though this is a frequent site. A brawny swelling in the tissues over the lesion develops which simulates an inflammatory or neoplastic lesion of the cheek or of the parotid gland. The infant becomes quite fretful, often febrile, and loses weight. Radiological examination of the mandible will confirm the diagnosis. Treatment with cortisone has been recommended[3], and rapidly improves the infant.

The problem as to when to advise biopsy of a suspicious node in the neck sometimes perplexes the physician. While a lymphoma of the cervical nodes is rare in children, it does occur. Anderson[1] has also emphasized solitary lymph node enlargement as the initial sign of leukemia. Many factors determine the advisability of cervical node biopsy. The history is of considerable value. Sources of infection should be investigated, but may coexist with a lymphoma. Unless the findings and complete laboratory studies definitely raise suspicion, empiric treatment for infection or simple observation for a short period is usually justified. Persistent and suspicious cervical node enlargement, particularly unilateral and unexplained, should have biopsy.

Thyroid tumors in children remain somewhat controversial. Recent reports[5,15] stress the apparent increased incidence of prior irradiation in children and adolescents who present with a malignancy of the thyroid. The danger of malignancy in nodular goiters in children is significant, being 29% in a composite series reported by Winship.[17] Prompt excision of thyroid nodules in children appears definitely indicated. A composite report on the treatment of thyroid carcinoma in children by the same author gives an overall survival of 83% in 192 patients with forty-eight patients dying of their disease.

POLYPS OF THE COLON

Polyps of the rectum and colon can be divided into three clinical groups—the single polyp, scattered or multiple polyps, and familial polyposis.[8] The prime symptom of a colonic or rectal polyp is bright rectal bleeding. The majority of single or scattered polyps are in the rectum and can be reached on rectal examination. Sigmoidoscopy should be performed in all instances of rectal bleeding in infants and children where no obvious cause such as an anal

fissure can be found. In infants and children sigmoidoscopy should be done under heavy sedation or general anesthesia because of the risk of perforation in a wildly struggling child. Polyps which are found can be removed with a snare adapted for simultaneous coagulation of the stalk. Polyps situated above the reach of the sigmoidscope must be removed by laparotomy and colotomy. If a polyp has been found on sigmoidoscopy, a barium enema is always indicated, and careful follow-up of the case carried out. The risk of malignancy is extremely slight with single or scattered polyps. Colonic and rectal polyps should be removed to prevent bleeding, to prevent their acting as the lead point for a prolapse or an intussusception, and possibly to prevent the later development of malignancy.

While single or scattered polyps can be treated rather satisfactorily, the treatment of familial polyposis is complicated by the widespread involvement of the bowel with continuing development of hundreds of polyps and the high incidence of malignancy even at an early age. In this condition sub-total colectomy must be performed, and constant observation and fulgeration of polyps which present in the remaining rectal segment continued.

BREAST ENLARGEMENT

A good example of a tumor which causes parents undue concern is enlargement of the breast in young children. Haagensen[9] reports only six well documented cases of breast carcinoma under twenty years of age, and as a first consideration it can be assumed that malignancy of the breast is extremely rare in childhood. The causes of breast enlargement in childhood are tabulated by Steiner[16] as shown in Figure 5. The most frequent and important of these

BREAST ENLARGEMENT IN CHILDREN
(Steiner, Ped. Clin. N.A., 1955)

1 Physiological—Newborn, Adolescent
2 Associated with Endocrine Changes
  True Precocious Puberty { Hypothalamic / Idiopathic
  Pseudoprecocious Puberty
    Ovarian and Adrenal Tumors
    END-ORGAN SENSITIVITY
    Medicational
3 Gynecomastia in the Male
4 Miscellaneous { Tumors (very rare) / Pseudohypertrophy

Fig. 5. Enlargement of the Breast in Childhood (*Pediatric Clinics of North America,* "Enlargement of the Breasts During Childhood". 2: pages 575-593, May, 1955)

causes are normal physiological enlargement and what is defined as an end-organ sensitivity of one or both breasts. The latter accounts for the majority of enlarged breasts seen in the four to ten year old group who present with a palpable tender bud beneath one areola. Axillary nodes are frequently palpable and have little diagnostic value. The patient often gives a history of previous trauma or of excessive examination of the breast. The mass may vary considerably in size from day to day. Patience and mere observation of the lesion is usually rewarded by the regression of the swelling, or often in the older girl, by the development of a similar normal enlargement of the contralateral breast. The parents must be carefully reassured of the benign nature of the swelling and of the rarity of malignancy in prepubertal breasts. Biopsy should be reserved for very rare cases, and should be done with the utmost care to preserve the bud beneath the areola in the female. The usual wedge biopsy taken from an eight year old's breast may well remove one-third to one-half of the future breast tissue with a resulting misshapen breast at puberty. The other causes of breast enlargement are uncommon, but should be remembered particularly in bilateral enlargements.

HEMANGIOMAS AND NEVI

Among the most common tumors seen in the everyday pediatric practice are the hemangiomas and the nevi. The treatment of hemangiomas must be individualized and several factors considered. The type of hemangioma and its natural history is important. The most common lesions are the capillary hemangioma (strawberry or raspberry mark), the cavernous hemangioma (bluish and subcutaneous), and combination of cavernous elements with overlying capillary components.[12] Spontaneous regression by a process of thrombosis and subsequent scarring is more common with the capillary than with the cavernous type. When first seen by the physician the process of regression may be evident as a whitish-gray central discoloration. A high percentage of hemangiomas will thus take care of themselves with satisfactory cosmetic and functional results. Malignancy is exceedingly rare, and is not an important factor in the consideration of treatment of the lesion. The location of the hemangioma must be considered in any decision to treat or to observe and also in determination of the best method of treatment. Although benign the potential of hemangiomas, particularly those located in critical areas such as the neck, must not be underestimated. The rate of enlargement of the lesion must be taken into account; whether it is enlarging commensurate with the growth of the child

or at an excessive rate. All of these factors must then be balanced against the expected result which will be obtained by treatment.

Methods used in the treatment of hemangiomas vary. Carbon dioxide snow can be used for cauterization of superficial small lesions to initiate the process of thrombosis. Superficial radiation has been used with very good results as reported by MacCollum and Martin.[12] There has developed some reluctance, however, in the light of present concern about the possible relationship of radiation to the development of malignancy in children to use radiation if other satisfactory methods can be used or if the lesion can simply be observed. Surgical excision of hemangiomas which require treatment is often quite satisfactory although considerable scarring can result from the excision of large lesions in infants. Surgical removal should, therefore, always be advised only with a clear understanding of what the non-operative course of the lesion would probably be as well as the functional and cosmetic result to be expected from excision.

Nevi are quite common in children, though malignant melanomas are quite rare. Juvenile melanomas in the child will often present an alarming microscopic appearance, unless the age of the patient is made known to the pathologist. The indications for removal of nevi in children are largely cosmetic. Nevi occurring in locations where the incidence of malignant melanoma is high in adults should be removed prophylactically prior to puberty.

RECURRENT MALIGNANCY

The treatment of a recurrent malignancy poses major problems to the attending physician. Pain must often be managed with narcotics which are tolerated well by even the two to three year old. Chlorpromazine and related drugs seem to be of value. Just as in the adult with malignancy, concern for bowel and bladder function and for care of the skin is necessary for the patient's comfort. The extreme unpredictability of tumors in children must not be forgotten, and all forms of treatment considered. Additional courses of radiation therapy, often well tolerated, may help selective lesions, particularly in bone, the lungs, or in the mediastinum. Chemotherapy with nitrogen mustard preparation and other newer agents may be worthy of trial. Repeated surgery on recurrent malignant lesions, such as teratomas still localized, may be successful.

One complication, which may often be forgotten, in infants and children with a history of major abdominal surgery is the development of intestinal obstruction due to peritoneal adhesions. For example, a child with a previously resected neuroblastoma who presents with acute abdominal pain, vomiting, and distension, may be completely cured of his malignancy, and have a potentially fatal intestinal obstruction from a simple adhesive band.

PSYCHOLOGICAL PROBLEMS OF PATIENT AND PARENTS

As difficult as any part of the medical management of malignancy in children is the psychological handling of the patient and of the parents. It has been said that, "There are few other human experiences that involve more suffering and anguish than the threatened or actual loss of a child."[2] The child's own reaction depends in large measure upon his age and background. Children infrequently concern themselves with death per se. They more often exhibit resignation and apathy as the disease progresses, and may appear to mature disproportionately. The child looks for kindness, continued interest, and tangible proof that the physician is "for him". Extreme efforts on the part of the parents and relatives, however, to make "his last months something for him to remember" may make the child more anxious than happy, if not moderated.

In the presence of the child with a malignancy the word "cancer" should be avoided. The attentive ears and active mouths of the other children on the ward must also be remembered and discussion in front of them likewise avoided. The grapevine of a pediatric ward takes second place to none.

The parents' usual reaction to the initial shock that their child has a malignancy is an absolute rejection of the idea. They fight the diagnosis and are antagonistic toward anyone who has a part in making it. The parents often desire other medical opinions. Following this reaction, guilt feelings are almost uniform. The parents will say that they should have brought the child to the physician earlier, or that they should have suspected something was wrong months ago. The parents should be helped in every way to express these feelings in order that they may be reassured. Unless the condition is known to be familial, the family should be reassured about the safety of other siblings. At no time is it more important that the physician take adequate time and exhibit a maximum of patience than when he tells parents of a diagnosis of malignancy in their child. An unhurried half hour spent with the parents will many times save hours of anxious questioning

later. The physician should establish securely the impression that he is interested, concerned, informed, and will do the utmost for their child. Nothing appears so important to the parents as whether or not the physician is willing to put himself out for their child even though the outlook may be hopeless.

Basic to the treatment of malignancy in children is the presence of one physician for the parents—a physician who "knows the case" and who is readily available to the parents for the most minor questions. This may be the family doctor or a specialist, but he must be available to the family. The parents want one physician to whom they can turn, even if only to recommend a glycerin suppository for the child's constipation. If special therapy is to be given at some distant medical center, it is well for the same physician to make the arrangements rather than to have the family shop around on their own. Bozeman[2] has called attention to the importance of aid for the mother such as assistance with some of the household obligations and with transportation problems. A suggestion from the physician may secure the help of neighbors or local groups. Temporary relief from the truly overwhelming burden of caring for the ill child is sometimes wanted, and here the physician's order of a few days' hospitalization for the child may prevent the total breakdown of the family. Lastly the mother needs to know that the doctor understands how catastrophically the family's life has been disrupted by the development of malignancy in her child.

Many believe that the child with recurrent and probably fatal malignancy should not be treated at all. While this may hold true in some cases, it appears to be the general impression of those who have observed large groups of parents with children having malignancies, that there is a strong desire to prolong life as long as possible, compatible with common sense and relative comfort. In short, ignoring the child may hurt him more than the pain associated with a transfusion needle, or to treat the child's pain requires that his tumor be treated. Added to this is the very unpredictable nature of malignancy in childhood, and a strong case exists for heroic therapy. A point of no return exists, but remission with alleviation of pain for six months has been stated by families to have been very rewarding both for the patient and the family.

CONCLUSIONS

1. Malignancy in infants and children is very unpredictable, usually rapid, but can be cured in some cases.
2. Symptoms of malignancy in infants and children may be minimal. The most important sign is an unexplained lump or mass.
3. Prompt excision of abdominal tumors, particularly in the infant or newborn, is important.
4. Some benign tumors can deform or kill if allowed to progress too far.
5. Malignancy in children rarely arises in the common sites of cancer in adults. Surgery should be avoided in most cases of breast enlargement in children.
6. The treatment of hemangiomas should be based on a thorough knowledge of the natural history of the lesion, and of the results to be expected from treatment or observation.
7. The treatment of the parents is many times as important as the treatment of the child. As a rule treatment should be continued, and the physician stubbornly do his best until the end.

References

1. Andersen, D. H.: Tumors of Infancy and Childhood: Survey of those seen in Pathology Laboratory of Babies Hospital during years 1935-1950. Cancer 4: 890-906, July, 1951.
2. Bozeman, M. F., Orbach, C. E., and Sutherland, A. M.: Psychological Impact of Cancer and Its Treatment, III Adaptation of Mothers to the Threatened Loss of Their Children through Leukemia, Part I-II. Cancer 8: 1-19, 20-33, Jan.-Feb., 1955.
3. Caffey, John: Infantile Cortical Hyperostosis: Review of Clinical and Radiographic Features. Proc. Roy. Soc. Med. 50: 347-354, May, 1957.
4. Cameron, Charles: Truth About Cancer: Prentice Hall, Englewood, 1956.
5. Clark, D. E.: Association of Irradiation with Cancer of the Thyroid in Children and Adolescents. J.A.M.A. 159: 1007-1009, Nov. 5, 1955.
6. Farber, Sidney: Malignant Disease in Children. Cancer—A Manual for Practitioners, 3rd Edition American Cancer Society (Massachusetts Division) 1956, pages 229-235.
7. Gross, R. E., Clatworthy, H. W., Jr., and Meeker, I. A. Jr.: Sacrococcygeal Teratomas in Infants and Children; Report of 40 Cases. Surg., Gynec., and Obst. 92: 341-354, March, 1951.
8. Gross, R. E.: The Surgery of Infancy and Childhood. W. B. Saunders Co., Philadelphia, 1953.
9. Haagensen, C. D.: Diseases of the Breast. W. B. Saunders Co., Philadelphia, 1956, page 338.
10. Hansen, A. E. and Boelsche, A. N.: Malignant Neoplasms in Children. Texas J. Med. 53: 894-924, 1957.
11. Longino, L. A. and Martin, L. W.: Abdominal Masses in the Newborn Infant. Pediatrics 21: 596-604, April, 1958.

12. MacCallum, D. W. and Martin, L. W.: Hemangiomas in Infancy and Childhood—A Report Based on 6479 Cases. Surg. Clin. North America 36: 1647-1663, Dec. 1956.

13. Nelson, Waldo E.: Textbook of Pediatrics. 6th Edition, W. B. Saunders Co., Philadelphia, 1954, pages 5-6.

14. Ravitch, M. M. and Smith, E. I.: Sacrococcygeal Teratoma in Infants and Children. Surgery 30: 733-762, Oct. 1951.

15. Simpson, C. L. and Hempelmann, L. H.: The Association of Tumors and Roentgen-Ray Treatment of the Thorax in Infancy. Cancer 10: 42-56, Jan.-Feb. 1957.

16. Steiner, M. M.: Enlargement of Breasts During Childhood. Pediat. Clin. North America 2: 575-593, May, 1955.

17. Winship, T. and Chase, W. W.: Thyroid Carcinoma in Children. Surg., Gynec., and Obst. 101: 217-224, Aug., 1955.

Medical Arts Building
Norfolk, Virginia

Whose Responsibility

A prevalent defense offered against a charge of drunk driving is that the defendant was not intoxicated but was dizzy or blacked out from medicine which had been prescribed for him by a physician. Medicine might be necessary, but should this constitute a valid defense, even if it be true?

Certain court rulings indicate it should not. In a 1953 New York case, several boys were hurrying back to their summer jobs at a resort in the northern part of the state. It was early in the morning and they had spent the night sightseeing in the big city. Their car was involved in a crash which killed two people.

There was no explanation but that the driver had fallen asleep. It was established that he had not been to bed that night and that he had remarked to his companions that he was very sleepy. An eyewitness stated the car had gone out of control for apparently no reason. There were no mechanical defects.

The court ruled he knew his exhausted condition and that in insisting upon pushing on he intentionally chanced the consequences and must take them.

In a 1950 New Jersey case, a defendant involved as a driver in a fatal crash testified he was suffering from a disease which caused him to be subject to spells of extreme dizziness. This was confirmed by a physician but the court ruled that driving under these circumstances, knowing he was suffering from this disease, "constituted an act of wantonness and a disregard of the rights or safety of others."

There are other cases, but these are typical. Would not one who takes drugs which can interfere with his driving be equally responsible? Not considering what the physician's responsibility as to warning him might be, should not the user have a responsibility to determine if it is safe for him to drive?

Driving today is an integral part of our lives. A person with an injured foot will not hesitate to ask his doctor's opinion as to when it is safe for him to walk on it, because he is anxious to use it again but does not want to cause further injury to *himself*. A busy man who is ill will ask his physician when he can return to work, because he wants to get back but doesn't want to aggravate *his* illness. A mother with a sick child will ask the doctor when it will be all right for the child to return to school, because she doesn't want *her* child to fall behind in his work but, at the same time, doesn't want him to risk a relapse.

Thus, why isn't it incumbent upon a patient given drugs to ask if it is practical for him to enter into the most dangerous task we perform in our everyday lives and which cannot only kill or injure *us* but other people?

In a task calling for skill, mental alertness and good physical condition, it should certainly be our responsibility to ascertain we are up to it. If not, we should face the consequences.

(Written by Colonel C. W. Woodson, Jr., and published by the Virginia Highway Users Association in Virginia Trucks.)

The Biological and Medical Significance of Copper

GALEN L. WAMPLER, M.D.
Richmond, Virginia

COPPER, classified biologically as a trace element, has an atomic weight of 63.54, an atomic number of 29, and has been established as an essential element for plants and animals.[27] This metal is universally distributed in nature. Its uses are varied. It is found in the hemocyanins, the respiratory proteins of certain marine animals. It is essential for the production of hemoglobin, the cytochromes, cytochrome oxidase, peroxidase, catalase, and chlorophyll. It is found in many plant and animal enzymes as well as other proteins.[20]

Copper commonly exists in two valence states other than the metal itself. These are the cuprous and cupric forms which are shown in Figure 1. The geometrical shape is an important feature in relation to its biological functions since its biochemistry is largely explained in terms of chelate bonds with proteins and other organic compounds, rather than of the usual chemical bonds. Chelate bonds are much weaker than covalent bonds. However, two such bonds are not just twice as stable as one. In fact, a linkage with a half life of one minute at room temperature would increase its half life to nearly 250,000 years with two bonds, assuming that temperature and other conditions were unchanged.[17] This explains how the cupric ion chelated at four points can assume complexes with stabilities equal to or exceeding those of covalent bonds.

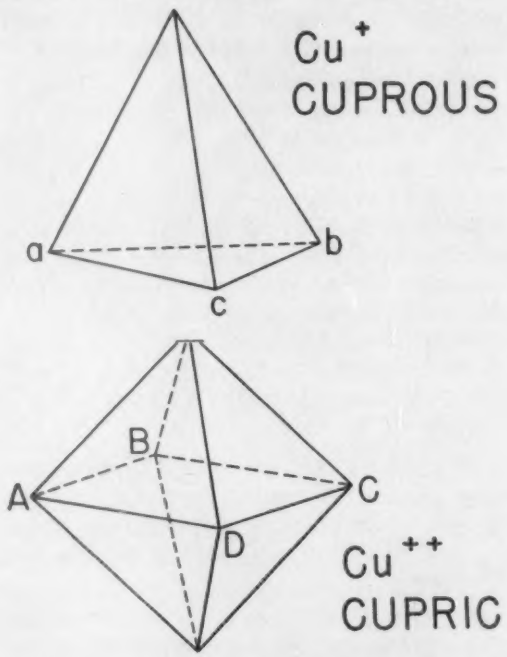


Fig. 1. *Geometrical shape of the cuprous and cupric ions*[17] Chelation may occur at any three points (for example abc) on the cuprous ion and at any four points (for example ABCD) on the cupric ion. The other point on the cuprous ion and the other two points on the cupric ion are utilized in chemical binding.

Another important feature of the organic copper complexes is the organic portion. The arrangement of the groups, radicals or atoms at the site on the organic molecule attached to the copper may greatly alter the stability of the complex. Those complexes that involve the least strain on bond angles and incorporate the most chelate bonds will be the most stable. Thus a protein having a template, or site of attachment, to which the four chelate bonds of the cupric ion may attach (Figure 1, points ABCD) will form a stable complex, whereas if the same protein site accepts the cuprous ion with only three chelate bonds (Figure 1, abc) the attachment will be incomplete and less stable.

Certain protein or organic compound binding sites for metals are non-specific. Such is the case with ethylenediamine tetra-acetic acid (EDTA) and dimercaprol (BAL) which are quite non-specific in terms of the atoms chelated. In other cases, the binding site is of such a nature that only one element is able to form a stable complex. Other compounds will accept two or more elements, but they usually have a preference for one. If another element is occupying the space it can be displaced by the atom which is preferred.

With this background in mind, let us examine some of the knowledge regarding copper enzymes and other copper proteins.

COPPER CONTAINING ENZYMES

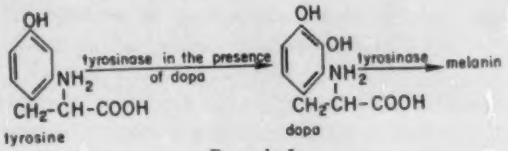
A. *Tyrosinase* (*Polyphenol oxidase*)

One of the important functions of trace elements

This paper represents in part a thesis submitted by the author to the Department of Medicine, Medical College of Virginia, in partial fulfillment of requirements for the M.D. degree.

WAMPLER, GALEN L., *Present address: Youngstown Hospital Association, Youngstown, Ohio.*

is their role in enzyme systems. Tyrosinase is widely distributed in nature being involved in the hardening of insect cuticle, the dark color of the ink produced by the squid,[31] darkening of plant tissues upon injury, pigmentation in melanomas and many other pigmentations in nature.[27] It has, probably, a molecular weight of 100,000 and contains 0.25% copper or four atoms of copper per molecule.[21] It functions as follows:



Formula I

Copper is essential to this enzyme system and cannot be replaced by other metal ions.[48] Tyrosinase is not necessary for dopa to be converted into melanin, for the oxidation proceeds at a slow rate spontaneously. Cupric ion, added to the system, will increase the rate. Plasma proteins, in addition to the cupric ion, further increase the rate. The process is greatly accelerated, however, in the presence of tyrosinase.[55]

B. *Laccase*

This is a copper oxidase found in plants, blue in color and having only slightly different substrate specificities from tyrosinase.[21]

C. *Uricase*

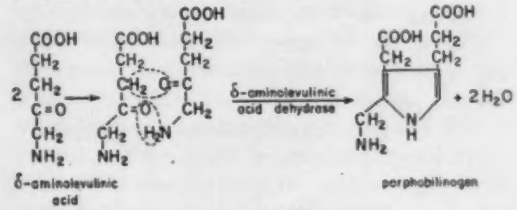
This enzyme with a molecular weight of 110,000 and 0.06% copper, links copper with purine metabolism. The substrate is uric acid.[31] It is found in many mammals but not in man.

D. *Butyryl CoA Dehydrogenase*

This is a deep brilliant green cuproflavoprotein containing 1.2% riboflavin and 0.35% copper. The molecular weight is 120,000-220,000. It is the first copper protein described with dehydrogenase function. It catalyzes the first step in the oxidation of lower fatty acids with three to eight carbon atoms.[31]

E. *Δ-Aminolevulinic Acid Dehydrase*

This enzyme, which contains 0.1% copper, catalyzes the reaction by which two molecules of Δ-aminolevulinic acid are joined to form a molecule of porphobilinogen[41] as follows:



Formula II

Copper has long been known to play some fundamental role in erythropoesis and the discovery of copper in this enzyme at least partially defines the role of copper in the production of all heme compounds.

F. *Ascorbic Acid Oxidase*

This is a blue green copper enzyme found in plants.[27] Its molecular weight is 150,000 and it contains 0.26% copper or six atoms per molecule.[20] The color changes to yellow when oxygen is excluded. The blue green color returns when, in solution, it is shaken in air. It is suggested that the blue green substance is a cupric protein oxygen complex while the yellow substance is a cuprous protein complex. Copper is tightly bound in the cupric state as no exchange with radioactive copper occurs.[20] Exchange with radioactive copper will occur when the enzyme is functioning.[20] The portion of the molecule of ascorbic acid acted on by ascorbic acid oxidase is identical to the portion of the molecule of dopa acted on by tyrosinase. In both an ene-diol structure is oxidatively converted to a diketo structure.[20] However, the similarities of the copper containing enzymes are not confined to similarities of substrate. Many of these enzymes have a blue or green color which may fade when the enzyme functions. In general, chemical inhibitors of one copper enzyme inhibit all copper enzymes. Molecular oxygen is utilized in the functioning of most of the enzymes. All of these properties appear to be intimately associated with the presence of copper in the enzymes and with its shift in valence state involving electron transfer.

G. *Cytochrome Oxidase*

There is evidence that this enzyme, the terminal oxidase of the cytochrome system, contains functionally active copper.[30]

MAMMALIAN COPPER PROTEINS WITHOUT KNOWN PHYSIOLOGIC FUNCTION

A. *Ceruloplasmin*

Ceruloplasmin is a blue protein isolated from pig and human serum which Holmberg and Laurell described in 1948.[33] It is an alpha$_2$ globulin[31] with a molecular weight of 151,000 and contains eight copper atoms in each molecule. It is reduced by ascorbic acid and other reducing substances to a colorless compound. This reaction is reversible in the presence of oxygen.[35] It is suggested that this change represents a change in the valence of copper

from two to one.[62] In the colorless (cuprous) form radioactive Cu^{64} will replace at least one half of the copper in ceruloplasmin.[63] As discussed above, this is apparently due to instability of the cuprous chelate bonds in comparison with the cupric.

The function of ceruloplasmin *in vivo* is not known. *In vitro* it has been shown to catalyze the oxidation of *p*-phenylene diamine, benzidine, adrenalin, dopa,[39] and serotonin.[3] The oxidase activity of serum is well correlated with the ceruloplasmin content.[39]

B. *Other Copper Proteins*

Hepatocuprin is a blue protein with a molecular weight of 35,000 found in the liver. It has a copper content of 0.34%.[10] Erythrocuprin (red cells) has a molecular weight of about 33,000 with two atoms of copper per molecule. Human erythrocuprin forms nearly colorless bluish green solutions and accounts for virtually all the normal erythrocyte copper. It is immunologically distinct from ceruloplasmin.[53] Milk copper protein has been found to have a copper content of 0.19%.[10] Recent studies indicate that the brain may contain a copper protein or proteins.[58] Sulfhydryl groups bind copper strongly and when this occurs the copper which appears may not be a functional part of the proteins involved.

COPPER METABOLISM IN THE NORMAL HUMAN SUBJECT

A. *Absorption*

Approximately 3-5 mg. of copper are ingested by the adult working man daily[29] which is more than sufficient to cover his probable requirement of two mg. per day.[16] A small portion of the copper, about 25-30% normally,[31,75] is absorbed and this occurs in the upper part of the small intestine.[29] Various dietary substances forming complexes with copper affect the absorption.[31] The mechanism of copper absorption is not known.

B. *Copper in the Blood*

Copper is found in the plasma in two fractions commonly designated as the direct and indirect reacting fractions.[33] The direct fraction accounts for only approximately 5% of the plasma copper. Copper administered either orally or intravenously first appears in this fraction and later becomes converted into indirect reacting copper. Direct reacting copper is copper loosely attached to serum albumin while indirect reacting copper (95% of plasma copper) is the copper found in ceruloplasmin.[31] The average normal value for plasma copper is about 116 ug. per 100 ml.[31] Plasma copper values are higher in women than in men.[60]

The red cells also have a labile and stable fraction of copper. The labile fraction is in equilibrium with the direct reacting plasma fraction.[31] If there is a deficiency of copper the red blood cells have proportionally more copper than the plasma.[1] This suggests that the function of copper in the erythrocytes may be of more importance to the organism than the plasma copper.

C. *Storage*

The liver is the most important organ of storage for copper. It normally contains about 18 mg.[29] of the body's estimated 100-150 mg. total copper content.[16] Other organs containing high concentrations of copper are the brain, kidney,[29] and prostate.[43]

D. *Excretion*

Copper is excreted via the bile, small intestinal mucosa, and urine—listed in descending order of importance.[49] Unlike iron, copper balance is maintained by an adjustment in the excretion rate. This is probably true only within certain limits.[31]

E. *Childhood and Infancy*

At birth, blood copper levels are quite low due to low ceruloplasmin levels.[61] Ceruloplasmin is produced slowly in infancy[44] possibly attributable to immature liver function. The direct fraction appears to be in equilibrium with the maternal direct reacting plasma copper fraction at the time of birth.[61] The infant's liver copper is five to ten times the adult concentration.[31] This, presumably, serves to tide him over the period of milk feeding since milk is quite a poor source of copper.[44]

F. *Menstruation and Pregnancy*

The level of serum copper at various stages in the menstrual cycle can be correlated with the excretion of estrogen and other hormones.[73] In pregnancy, plasma copper is elevated, especially in the third trimester. This increase is largely due to an increase in the indirect fraction.[33] Erythrocyte copper is unchanged.[45]

The changes in copper metabolism which occur with menstruation and pregnancy can at least be partially explained by the elevating effect of estrogen on serum copper. Several investigators have shown that the administration of estrogen[60,73] raises the serum copper to high levels in both men and women. This same effect probably also accounts for the nor-

mally slightly elevated plasma copper levels of women as compared with men.

COPPER EXCESS AND DEFICIENCY

A. *Acute Copper Poisoning*

In animals, copper poisoning causes different changes in different species. There is evidence of an acute hemolytic process in most with a reticulocytosis, drop in hemoglobin and erythrocytes, and hemoglobinuria. In the hepatic and renal cells pigmentation and necrosis occur.[51]

In man, copper rarely gives rise to poisoning because the salts have a harsh metallic taste, the emetic action promptly empties the stomach, and the lethal dose is relatively high (probably about 15 grams for copper sulfate.) The symptoms of acute ingestion of copper salts include pain, emesis, diarrhea, headache, and shock proceeding to delirium, convulsion, paralysis, coma and death. Physiologically there occurs widespread capillary damage, kidney injury, and central nervous system excitation followed by depression.[24,28] The treatment consists of gastric lavage, supportive and symptomatic therapy, and BAL in severe cases.[28]

B. *Chronic Copper Poisoning*

Copper poisoning in rabbits causes hepatic pigmentation and cirrhosis if the dose is large enough and extended over a sufficient period of time. Other organs are also involved. The doses required to produce these changes are quite large. If moderate doses are given the animals assimilate the copper with no injurious effects.[36,50,51]

In man, the occurrence of chronic copper poisoning has not been established.[24]

C. *Copper Deficiency*

In animals, copper deficiency causes a multitude of conditions which vary with the species. Ataxia, alopecia, reduced reproductive capacity, diminished pigmentation, or dermatosis can occur, but most notable is anemia and osteoporosis.[19,29,31]

There has been considerable dispute as to whether copper deficiency ever occurs in human beings.[31,44] It has been stated that man would probably die for lack of calories first.[44] Nevertheless, there is evidence that in some infants on milk diets for protracted periods of time with the exclusion of practically all other foods, a syndrome of multiple deficiencies occurs. Among them is a copper deficiency which is apparently not secondary to any others.[47,66] All such children studied had marked pallor and peripheral edema, particularly of the eyelids.[47,66] Two had osteoporosis.[47] Laboratory studies revealed, among other things, a microcytic hypochromic anemia, hypoferremia, hypocupremia, increased free erythrocyte protoporphyrin, and low serum proteins with reduction of both fractions.[47,66]

The hypocupremia, not secondary to the hypoproteinemia, can be corrected with oral copper sulfate independent of the other deficiencies, or can be partially corrected with iron therapy alone. All of the deficiencies may be corrected simultaneously with an improved diet.[47,66]

In swine, iron metabolism is altered considerably in copper deficiency anemia. There is impaired absorption of iron from the alimentary tract and even parenterally administered iron in large amounts fails to overcome the anemia.[34,46] Previously, it was thought that copper deficiency interfered with the absorption, transportation utilization, and storage of iron.[29,46] However, it has since been shown, by the use of radioactive iron, that the anemia of copper deficiency is caused by a hemolytic process in which the erythrocyte life span is shortened to about one fifth the normal value. The plasma iron turnover and the amount of iron incorporated into erythrocytes daily is increased. It is suggested that the anemia results because defective cells are not able to endure the normal stresses on a cell in circulation, and red cell production cannot be increased sufficiently to compensate for this destruction.[10] The defect in the red cells is partially corrected by injection into a normal animal.[21] Impaired function of the enzyme Δ-aminolevulinic acid dehydrase only partially explains these phenomena.

COPPER METABOLISM IN VARIOUS PATHOLOGICAL CONDITIONS

A. *Anemias of Various Types*

Plasma copper is elevated in the anemias of infection and acute hemorrhage, iron deficiency anemia (man)[13], sickle cell anemia, aplastic anemia and thalassemia.[45] It is increased slightly in pernicious anemia.[45] It is normal in the anemia resulting from lead poisoning[59] and in the iron deficiency anemia of pigs.[13] It is slightly decreased in pyridoxine deficiency anemia.[13] It is significantly reduced in copper deficiency anemia[46,47] and in the anemia secondary to protein deficiency.[13] There appears to be some correlation between the plasma copper and erythrocyte protoporphyrin in these conditions which is not surprising in view of the action of the copper enzyme Δ-aminolevulinic acid dehydrase. The significance of the changes in copper

metabolism in the various anemias is not well appreciated at the present time.

B. *Infections*

Plasma copper increases significantly in acute and chronic infectious diseases while erythrocyte copper is unchanged.[45] This increase is quite sensitive occuring even in mild infections[9] and is well correlated with an increased sedimentation rate and positive C—reactive protein.[40] The rise occurs soon after the onset of infection, is not correlated with the duration of the illness or the presence or absence of anemia, and drops promptly after the infection subsides.[9,45]

C. *Central Nervous System Diseases*

Interest in the role of copper in central nervous system diseases arose after the demonstration that certain demyelinating diseases in lambs such as enzootic ataxia, found in western Australia, and swayback, found in Great Britain and other countries, were due to copper deficiency. With the exception of Wilson's disease attempts to link copper with various CNS diseases have been unfruitful.[52] Patients with schizophrenia have a slightly increased serum copper.[40]

D. *Liver Disease*

In Laennec's cirrhosis there is an increase in the serum copper, the copper concentration of the liver, the serum ceruloplasmin, the urinary copper, and the cerebrospinal fluid copper.[5,18,32,56] These changes represent the *average* since specific changes may occur in less than half of the subjects under study. In biliary cirrhosis the serum copper, hepatic copper, urinary copper, and ceruloplasmin increase to a considerably greater extent than they do in Laennec's cirrhosis.[5,32] Circulating estrogens which are high in liver disease, may partially account for these elevations. The factor of obstruction to the flow of bile, a major route of copper excretion, appears to be more important. In animals with surgically ligated bile ducts the copper content of urine rises and hepatic copper increases greatly.[49] In patients with Laennec's cirrhosis who had an associated cholangiolitis the hepatic copper was greatly elevated. In fact, no increase was found without some degree of cholangiolitis.[32]

At one time, hemochromatosis was thought to be due to copper intoxication because of the pigmentary cirrhosis produced in animals by chronic excesses of this metal.[50] This view is no longer tenable. Serum copper is elevated, however, in some of these patients.[45]

E. *Kidney Diseases*

Plasma copper is low in the nephrotic syndrome due to a loss of ceruloplasmin in the urine. The erythrocytes have reduced copper but the anemia does not respond to treatment with this element. Plasma copper is normal or high in uremic patients.[11]

F. *Wilson's Disease*

Wilson's disease is an inborn error of metabolism[3] inherited as an autosomal recessive[4] and is characterized clinically by one or more of the following:

(1) Kayser-Fleischer rings
(2) neurological disturbances
(3) cirrhosis of the liver
(4) altered renal function
(5) osseous changes[3,6,25]
(6) hyperpigmentation[6,8,25]
(7) azure lunulae[6]

Biochemical and physiological changes which occur are:

(1) decreased serum ceruloplasmin[12,62] with resulting decreased oxidase activity of the serum[8,15] and decreased plasma and whole blood copper[8]
(2) increased direct reading plasma copper[8]
(3) increased copper absorption from the intestine[54]
(4) decreased copper in the stool[8,15,54]
(5) increased copper deposits in the tissues, especially the liver[18,56] brain[18,56] and kidneys[8]
(6) positive copper balance[12]
(7) increased urinary copper [8,52]
(8) other urinary changes—aminoaciduria,[5,8,70] glycosuria,[5,8] peptiduria,[70] increased phosphate and uric acid excretion,[14] and other abnormalities[7]

Many *theories* have been advanced to explain the various changes in Wilson's disease. Bearn[3] has summarized the thinking of the two major schools. One school of thought proposes that the abnormal gene functions to produce proteins with increased affinity for copper.[71] The aminoaciduria and peptiduria are results of incomplete metabolism resulting from these abnormal proteins and are primary in the disease.[70] Increased copper absorption occurs as a result of increased binding of copper by the intestinal mucosa.[71] Ceruloplasmin is decreased because copper is diverted to tissues with increased affinity for the metal. Copper is excreted in excessive quan-

tities in the urine because it is chelated with peptides and amino acids.[68] Objections to this hypothesis are:

(1) Aminoaciduria does not occur in all patients with Wilson's disease and is apparently a secondary feature.[3]

(2) The occurrence of peptiduria has not been confirmed.[3]

(3) It does not explain how manganese intoxication in man gives a syndrome similar to Wilson's disease.[67] (This syndrome, however, has not been duplicated in animals.[35])

The other main school of thought proposes that decreased ceruloplasmin is the primary defect—in other words, the direct result of the abnormal gene. The decreased ceruloplasmin causes the copper to attach to serum protein. The copper which is bound to albumin remains at high levels, is deposited in the tissues, and is excreted in the urine in greater than normal amounts. The deposition of the copper in the kidneys results in damage similar to that precipitated by other heavy metals and accounts for the other urinary changes. This hypothesis, however, fails to explain, among other things:

(1) How depressed ceruloplasmin increases copper absorption[3] although it has been proposed that ceruloplasmin releases copper in normal individuals at the site of absorption, thus keeping the gradient higher in the blood and preventing overabsorption.[63]

(2) Why the severity of the disease is not correlated with the ceruloplasmin level. Estrogen administered to patients with the disease will raise the ceruloplasmin levels to normal in some cases with no apparent improvement.[3]

(3) Why copper administration in animals fails to give a syndrome resembling Wilson's disease.[3] In view of the large amounts of copper that can be handled by animals in experimentation of chronic intoxication with no detrimental effects,[51] it is hard to see how any hypothesis assuming only increased absorption can be correct.

Kayser-Fleischer rings are found in 90 per cent of patients with Wilson's disease[3] and are pathognomonic of the condition.[26] These rings circle the cornea at the limbus and vary in color from golden brown[26] to greyish-green.[3] They may occur in the absence of neurological or abdominal findings.[64] They have been shown to contain copper and other metals.[23,72] The copper is not just deposited as copper salts. On the contrary, the color is apparently due to physical properties and is determined by the number of layers, the thickness of the zones, the particle size and density, and possibly other factors.[72] It is claimed that deposition of copper occurs secondarily to a pre-existing anomalous matrix in Descemet's membrane.[69] The rings, however, become more transparent or change color under dimercaprol therapy.[22,25]

In the *brain* there is an increased percentage of loosely bound copper in Wilson's disease[58] and the clinical condition of the patient, from the neurological point of view, improves on BAL treatment. With discontinuance of therapy the patient will become worse only to improve again on retreatment.[22] Copper in minute quantities has been shown to disturb the function of nervous tissue.[37] These facts indicate that in the brain copper acts as an intoxicating agent.

In the *liver,* on the other hand, copper is only found in the hepatic cells and not in stromal or Kupffer cells,[14,56,69] whereas in chronic copper poisoning in animals Kupffer cells are active in engulfing copper and form giant cells for this purpose.[36] The copper deposited in the liver in Wilson's disease has an unequal distribution in the various lobules, and an abnormal protein fraction has been identified electrophoretically, which has an increased affinity for copper.[69,71] Here, copper does not appear to be acting primarily as a toxic agent.

In the *kidney* the changes which occur resemble quite closely those of Fanconi's syndrome. There is altered tubular function, decreased glomerular filtration rate, decreased renal plasma flow, a slightly increased filtration fraction, increased urine pH, aminoaciduria with a characteristic pattern, glycosuria, impaired phosphate reabsorption with increased phosphate excretion, increased uric acid excretion, and proteinuria associated with protein casts.[3,7] Some aspects of the urinary changes are of the type caused by lead poisoning,[8] and the best explanation for the changes observed is that copper interferes with essential enzyme systems which are responsible for the transportation of materials across the tubular membrane.[7] The brunt of the damage falls on the proximal tubule initially and this results in defective transport of phosphate, amino acids, glucose, and urate. Later, other functions are disturbed as evidenced by alkaline urine and decreased glomerular filtration rate.[7]

The *osseous changes* of Wilson's disease include spontaneous fractures, osteomalacia, degenerative changes and bone fragmentation. While the increased

renal phosphorous excretion is considered important in their production, other factors probably enter into the etiology.[3]

The best explanation for the *hyperpigmentation* is that the increased direct reacting copper increases the production of melanin by processes previously described in the section dealing with tyrosinase.

Azure lunulae is an unusual blue pigmentation of the lunula of the fingernail, found rarely in patients with Wilson's disease. Increased copper content of the nails has not been incriminated as the cause of this interesting sign.[6]

Various *types of therapy* for Wilson's disease have been tried. The chelating agents, BAL,[3,8,22,26] EDTA,[5,8,26] and penicillamine,[2,26,74] have received the most extensive trials. Exchange resins[75] and potassium sulfide[8,12,26] have been given to prevent copper absorption from the gastrointestinal tract. Molybdenum, which antagonizes copper and causes a deficiency of it in animals is of little benefit in the treatment of Wilson's disease.[8] Amino acids,[12] which increase copper excretion,[4,68] and also cortisone,[5] ceruloplasmin,[8] and estrogens[3] have been used. Only the chelating agents seem to be of any real value although some other agents, particularly potassium sulfide, may be useful adjuncts. The chelating agents appear to be effective where appropriate blood levels can be maintained without untoward effects. For this reason penicillamine is best[2,26]—it is orally effective and has the least side effects.

The ultimate explanation of the mechanisms acting in Wilson's disease will, in all likelihood, incorporate principles from both of the two leading theories. The factor of diminished excretion of copper by the intestinal mucosa and liver remains as another possible explanation for the positive copper balance. This has been suggested and dismissed[12] but hardly seems adequately ruled out. In view of a report of low bile copper in a patient with Wilson's disease,[8] this may at least be a factor.

G. *Miscellaneous Conditions*

Serum copper has been reported to be high in polycythemia vera, Addison's disease, various collagen diseases, diabetes, hyperthyroidism, malaria, arsenic poisoning and various malignancies, especially the lymphomas.[9,45] Quite high values have been reported in acute leukemia and Hodgkin's disease.[45]

In pregnant women with pruritis serum copper values were found to be higher than in comparable pregnant women without pruritis.[73] Hypercupremia occurs in several diseases in which pruritis may be a marked feature. These include diabetes, the lymphomas and biliary cirrhosis. In the latter two hyperpigmentation may be present as well.

COPPER AS THERAPY

Copper has been used for centuries as a medicinal agent.[9] In modern medicine it has little place in therapy. Although it is necessary for erythropoesis, its routine use in anti-anemic preparations cannot be recommended. It may justifiably be used in the rare case of anemia in infants in whom hypocupremia is present.

The development of certain experimentally produced liver tumors appears to be retarded by dietary copper salts.[57,65] The main effect of the copper in these studies seems to be the destruction of the carcinogens. No evidence is available for the use of copper in cancer chemotherapy.[42]

SUMMARY

(1) A consideration of the physical properties of the copper atom, its valence changes, and its formation of chelate bonds is essential to an understanding of the chemistry of copper enzymes and proteins. These features probably explain how copper can be so tightly bound in the blue forms of ceruloplasmin and ascorbic acid oxidase and loosely bound in the colorless forms. In all likelihood this same knowledge will prove useful in the ultimate explanation of the apparent tight binding of copper by some tissues in Wilson's disease. A small change in a protein structure could easily disturb the oxidation or reduction of copper ions.

(2) Copper proteins with known *in vivo* enzymatic function in mammals are tyrosinase, uricase, butyryl Coenzyme A dehydrogenase, Δ-aminolevulinic acid dehydrase and possibly cytochrome oxidase. Other copper proteins without known physiologic action have been isolated.

(3) Copper is absorbed in the upper intestinal tract and excreted principally via the bile. The erythrocytes and the plasma both contain copper which is tightly and loosely bound. The tightly bound plasma copper is synonymous with the ceruloplasmin copper. The chief organ of copper storage is the liver.

(4) Acute copper poisoning in man rarely occurs because of the emetic action of copper and because the lethal dose is relatively high. Chronic copper poisoning in man is unrecognized.

(5) Copper deficiency never occurs in man with

the possible exception of certain infants on milk diets who demonstrate a multiple deficiency syndrome.

(6) Blood copper is high in pregnancy, infections, certain anemias, some cases of collagen disease and hemochromatosis, in most cases of liver disease, in various malignancies, and in numerous other diseases. Blood copper is low in infants and in patients with the nephrotic syndrome, Wilson's disease, the anemias of copper deficiency and protein deficiency, and possibly in sprue.

(7) Wilson's disease has been the object of considerable investigation for the past decade as the result of the discovery of the role of copper in the disease. Numerous theories have been advanced in an attempt to explain the various clinical and biochemical abnormalities, none of which have proven satisfactory. It is likely that future theories will combine, in some fashion, features of several of the explanations most seriously considered at the present time.

(8) Copper plays a very small role in the therapy of disease.

The author wishes to express appreciation to Dr. Isabel Taliaferro for her interest and helpful criticism in the preparation of this manuscript and to Dr. E. S. Higgins, Dr. C. C. Clayton, and Dr. G. W. James III, for their helpful suggestions.

Bibliography

1. Adams, F. W., and Haag, J. R.: Copper contents of citrated whole blood and plasma of cattle. J. Nutrition 63: 585-90, 1957.
2. Ashby, M.: Hepato-lenticular degeneration (case report). Proc. Roy. Soc. Med. 50: 884, 1957.
3. Bearn, A. G.: Wilson's disease, an inborn error of metabolism with multiple manifestations. Am. J. Med. 22: 747-57, 1957.
4. Bearn, A. G.: Genetic and biochemical aspects of Wilson's disease. Am. J. Med. 15: 442-9, 1953.
5. Bearn, A. G., and Kunkel, H. G.: Abnormalities of copper metabolism in Wilson's disease and their relationship to aminoaciduria. J. Clin. Invest. 33: 400-9, 1954.
6. Bearn, A. G., and McKusick, V. A.: Azure lunulae, an unusual change in the fingernails in two patients with hepatolenticular degeneration (Wilson's disease). J.A.M.A. 166: 904-6, 1958.
7. Bearn, A. G., Yü, T. F., and Gutman, A. B.: Renal function in Wilson's disease. J. Clin. Invest. 36: 1107-14, 1957.
8. Bickel, H., Neale, F. C., and Hall, G.: A clinical and biochemical study of hepatolenticular degeneration (Wilson's disease). Quart. J. of Med. 50: 527-58, 1957.
9. Cartwright, G. E.: Copper metabolism in human subjects. Copper Metabolism, A Symposium On Animal, Plant, and Soil Relationships. Edited by McElroy, W. D., and Glass, B. 274-314. The Johns Hopkins Press, Baltimore, 1950.
10. Cartwright, G. E.: The relationship of copper, cobalt, and other trace elements to hemopoesis. Am. J. Clin. Nutrit. 3: 11-19, 1955.
11. Cartwright, G. E., Gubler, C. J., and Wintrobe, M. M.: Studies on copper metabolism (XI). Copper and iron metabolism in the nephrotic syndrome. J. Clin. Invest. 33: 685-98, 1954.
12. Cartwright, G. E., Hodges, R. E., Gubler, C. J., Mahoney, J. P., Daum, K., Wintrobe, M. M., and Bean, W. B.: Studies on copper metabolism (XIII), Hepatolenticular degeneration. J. Clin. Invest. 33: 1487-1501, 1954.
13. Cartwright, G. E., and Wintrobe, M. M.: Studies on free erythrocyte protoporphyrin, plasma copper and plasma iron in protein-deficient and iron-deficient swine. J. Biol. Chem. 176: 571-83, 1948.
14. Chalmers, T. C., Iber, F. L., and Uzman, L. L.: Hepatolenticular degeneration (Wilson's disease) as a form of idiopathic cirrhosis. New England J. Med. 256: 235-42, 1957.
15. Ch'en P'ei-En.: Abnormalities of copper metabolism in Wilson's disease. Chinese M. J. 75: 917-24, 1957.
16. Chou, T. P., and Adolph, W. H.: Copper metabolism in man. Biochem. J. 29: 476-79, 1935.
17. Corwin, A. H.: The formation of copper complexes. Copper Metabolism, A Symposium on Animal, Plant, and Soil Relationships. Edited by McElroy, W. D., and Glass, B. 1-17. The Johns Hopkins Press, Baltimore, 1950.
18. Cumings, J. N.: The copper and iron content of brain and liver in the normal and in hepato-lenticular degeneration. Brain 71: 410-15, 1948.
19. Cunningham, I. J.: Copper and molybdenum in relation to diseases of cattle and sheep in New Zealand. Copper Metabolism, A Symposium on Animal, Plant, and Soil Relationships. Edited by McElroy, W. D., and Glass, B. 246-73. The John Hopkins Press, Baltimore, 1950.
20. Dawson, C. R.: The copper protein, ascorbic acid oxidase. Copper Metabolism, A Symposium on Animal, Plant, and Soil Relationships. Edited by McElroy, W. D., and Glass, B. 18-47. The Johns Hopkins Press, Baltimore, 1950.
21. Dawson, C. R., and Tarpley, W. B.: Copper oxidases. The Enzymes, Chemistry and Mechanism of Action. Vol. II Part I. Ed. by Sumner, J. B., and Myrbäck, K. 454-98. Academic Press, Inc., New York, 1951.
22. Denny-Brown, D., and Porter, H.: The effect of BAL (2-3 dimercaptopropanol) on hepatolenticular degeneration (Wilson's disease). New England J. Med. 245: 917-25, 1951.
23. Eckardt, R. E., Stolzar, I. H., Adam, A. B., and Johnson, L. V.: The pigment of the Kayser-Fleischer Ring. Am. J. Ophth. 26: 151-4, 1943.
24. Fairhall, L. T.: Industrial Toxicology. Second Edi-

tion, 42-4. The Williams and Wilkins Co., Baltimore, 1957.

25. Feng Ying-K'un: Wilson's disease, Report of ten cases. Chinese M. J. 75: 631-55, 1957.

26. Fister, W. P., Boulding, J. E., and Baker, R. A.: The treatment of hepatolenticular degeneration with Penicillamine with report of two cases. Canad. M. A. J. 78: 99-102, 1958.

27. Glass, B.: A summary of the symposium. Copper Metabolism, A Symposium on Animal, Plant, and Soil Relationships. Edited by McElroy, W. D., and Glass, B. 399-429. The Johns Hopkins Press, Baltimore, 1950.

28. Gleason, M. N., Gosselin, R. E., and Hodge, H. C.: Clinical Toxicology of Commercial Products. 130. The Williams and Wilkins Co., Baltimore, 1957.

29. Goodman, L. S., and Gilman, A.: The Pharmacological Basis of Therapeutics. Second Edition, 1468-72. The Macmillan Co., New York, 1956.

30. Green, D. E., Basford, R. E., and Mackler, B.: The role of iron and copper in terminal electron transport. A Symposium on Inorganic Nitrogen Metabolism. Ed. by McElroy, W. D., and Glass, B. 628-54. The Johns Hopkins Press, Baltimore, 1956.

31. Gubler, C. J.: Copper metabolism in man. J.A.M.A. 161: 530-35, 1956.

32. Gubler, C. J., Brown, H., Markowitz, H., Cartwright, G. E., and Wintrobe, M. M.: Studies in copper metabolism (XXIII) Portal (Laennec's) cirrhosis of the liver. J. Clin. Invest. 36: 1208-16, 1957.

33. Gubler, C. J., Lahey, M. E., Cartwright, G. E., and Wintrobe, M. M.: Studies on copper metabolism (IX). The transportation of copper in blood. J. Clin. Invest. 32: 405-14, 1953.

34. Gubler, C. J., Lahey, M. E., Chase, M. S., Cartwright, G. E., Wintrobe, M. M.: Studies on copper metabolism (III) The metabolism of iron in copper deficient swine. Blood 7: 1075-92, 1952.

35. Gubler, C. J., Taylor, D. S., Eichwald, E. J., Cartwright, G. E., and Wintrobe, M. M.: Copper metabolism (XII) Influence of manganese on the metabolism of copper. Proc. Soc. Exper. Biol. and Med. 86: 223-7, 1954.

36. Hall, E. M., and MacKay, E. M.: Experimental hepatic pigmentation and cirrhosis (I) Does copper poisoning produce pigmentation and cirrhosis of the liver? Am. J. Path. 7: 327-42, 1931.

37. Hansl, N., Hyman, I., Luparello, T., and Zimdahl, W. T.: Studies on hepatolenticular degeneration; copper as the causative agent in the degeneration and dysfunction of electric tissue. J. Lab. and Clin. Med. 48: 108-16, 1956.

38. Holmberg, C. G., and Laurell, C. B.: Investigations in serum copper (II) Isolation of the copper containing protein, and a description of some of its properties. Acta Chem. Scand. 2: 550-6, 1948.

39. Holmberg, C. G., and Laurell, C. B.: Oxidase reactions in human plasma caused by ceruloplasmin. Scand. J. Clin. and Lab. Invest. 3: 103-7, 1951.

40. Horwitt, M. K., Meyer, B. J., Meyer, A. C., Harvey, C. C., and Haffron, D.: Serum copper and oxidase activity in schizophrenic patients. Arch. Neurol. and Psychiat. 78: 275-82, 1957.

41. Iodice, A. A., Richert, D. A., and Schulman, M. P.: Copper content of purified △-aminolevulinic acid dehydrase. Fed. Proc. 17: 248, 1958.

42. King, H. J., Spain, J. D., and Clayton, C. C.: Dietary salts and azo dye carcinogenesis. J. Nutrition 63: 301-9, 1957.

43. Koch, H. J., Smith, E. R., Shimp, N. F., and Connor, J. Analysis of trace elements in human tissues (I). Normal tissues. Cancer 9: 499-511, 1956.

44. Lahey, M. E.: Iron and copper in infant nutrition. Am. J. Clin. Nutrition 5: 516-26, 1957.

45. Lahey, M. E., Gubler, C. J., Cartwright, G. E., and Wintrobe, M. M.: Studies on copper metabolism (VII) Blood copper in pregnancy and various pathologic states. J. Clin. Invest. 32: 329-39, 1953.

46. Lahey, M. E., Gubler, C. J., Chase, M. S., Cartwright, G. E., and Wintrobe, M. M.: Studies on copper metabolism (II) Hematologic manifestations of copper deficiency in swine. Blood 7: 1053-74, 1952.

47. Lahey, M. E., and Schubert, W. K.: New deficiency syndrome occurring in infancy. A. M. A. J. Diseases Child. 93: 31-4, 1957.

48. Lerner, A. B., Fitzpatrick, T. B., Calkins, E., and Summerson, W. H.: Mammalian tyrosinase: the relationship of copper to enzymatic activity. J. Biol. Chem. 187: 793-802, 1950.

49. Mahoney, J. P., Bush, J. A., Gubler, C. J., Moretz, W. H., Cartwright, G. E., and Wintrobe, M. M.: Studies on copper metabolism (XV) The excretion of copper by animals. J. Lab. and Clin. Med. 46: 702-8, 1955.

50. Mallory, F. B.: The relation of chronic poisoning with copper to hemochromatosis. Am. J. Path. 1: 117-33, 1925.

51. Mallory, F. B., and Parker, F., Jr.: Experimental copper poisoning. Am. J. Path. 7: 351-63, 1931.

52. Mandelbrote, B. M., Stanier, M. W., Thompson, R. H. S., and Thurston, M. N.: Studies on copper metabolism in demyelinating diseases of the central nervous system. Brain 71: 212-28, 1948.

53. Markowitz, H., Cartwright, G. E., and Wintrobe, M. M.: Studies on copper metabolism (XXVII) The isolation and properties of an erythrocyte cuproprotein (erythrocuprein) J. Biol. Chem. 234: 40-45, 1959.

54. Matthews, W. B.: The absorption and excretion of radioactive copper in hepatolenticular degeneration (Wilson's disease). J. Neurol. Neurosurg. and Psychiat. 17: 242-6, 1954.

55. Monder, C., Williams, J. N., Jr., and Waisman, H. A.: The non-enzymic conversion of dopa to malanin (II) The aerobic catalysis of dopa oxidation by copper ions and copper-plasma protein complexes. Arch. of Biochem. and Biophysics. 72: 271-92, 1957.

56. Okinaka, S., Yoshikawa, M., Toyoda, M., Mozai, T., Toyokura, Y., and Kameyama, M.: Pathogenesis of hepatocerebral disease (II) Histochemical study

of copper of liver and brain in Wilson's disease. Arch. Neurol. and Psychiat. 72: 573-8, 1954.

57. Pedrero, E., and Kozelka, F. L.: Effect of copper on hepatic tumors produced by 3'-methyl-4-dimethylamino azo benzene. Arch. Path. 52: 455-7, 1951.

58. Porter, H., and Folch, J.: Brain copper-protein fractions in the normal and in Wilson's disease. Arch. Neurol. and Psychiat. 77:8-16, 1957.

59. Rubino, G. F., Pagliardi, E., Prato, V., and Giangrandi, E.: Erythrocyte copper and porphyrins in lead poisoning. Brit. J. Haemat. 4: 103-7, 1958.

60. Russ, E. M., and Raymunt, J.: Influence of estrogens on total serum copper and caeruloplasmin. Proc. Soc. Exper. Biol. and Med. 92: 465-6, 1956.

61. Scheinberg, I. H., Cook, C. D., and Murphy, J. A.: The concentration of copper and ceruloplasmin in maternal and infant plasma at delivery. J. Clin. Invest. 33: 963, 1954.

62. Scheinberg, I. H., and Gitlin, D.: Deficiency of ceruloplasmin in patients with hepato-lenticular degeneration (Wilson's disease). Science 116: 484-5, 1952.

63. Scheinberg, I. H., and Morell, A. G.: Exchange of ceruloplasmin copper with ionic copper^{64} with reference to Wilson's disease. J. Clin. Invest. 36: 1193-1201, 1957.

64. Segal, P., Ruszkowski, M., Berger, S., and Masiak, M.: Abortive form of Wilson's syndrome with dark adaptation disturbances. Am. J. Ophth. 44: 623-9, 1957.

65. Sharpless, G. R.: The effect of copper on liver tumor induction by *p*-dimethylaminobenzene. Fed. Proc. 5: 239, 1946.

66. Sturgeon, P., and Brubaker, C.: Copper deficiency in infants, A syndrome characterized by hypocupremia, iron deficiency anemia, and hypoproteinemia. J. Diseases Child. 92: 254-65, 1956.

67. Turner, J. W. A.: Metallic poisons and the nervous system. Lancet 1: 661-2, 1955.

68. Uzman, L. L.: On the relationship of urinary copper excretion to the aminoaciduria in Wilson's disease (hepatolenticular degeneration). Am. J. Med. Sc. 226: 645-52, 1953.

69. Uzman, L. L.: The intrahepatic distribution of copper in relation to the pathogenesis of hepatolenticular degeneration. Arch. Path. 64: 464-79, 1957.

70. Uzman, L. L., and Hood, B.: The familial nature of the aminoaciduria of Wilson's disease (Hepatolenticular degeneration). Am. J. Med. Sc. 223: 392-400, 1952.

71. Uzman, L. L., Iber, F. L., Chalmers, T. C., and Knowlton, M.: The mechanism of copper deposition in the liver in hepatolenticular degeneration (Wilson's disease). Am. J. Med. Sc. 231: 511-18, 1956.

72. Uzman, L. L., and Jakus, M. A.: The Kayser-Fleischer Ring. A histochemical and electron microscopic study. Neurology 7: 341-55, 1957.

73. Von Studnitz, W., and Berezin, D.: Studies on serum copper during pregnancy, during the menstrual cycle, and after the administration of oestrogens. Acta Endocrinologica 27: 245-52, 1958.

74. Walshe, J. M.: Wilson's disease; new oral therapy. Lancet 1: 25-6, 1956.

75. Zimdahl, W. T., Hyman, I., and Cook, E. D.: Metabolism of copper in hepatolenticular degeneration. Neurology 3: 569-76, 1953.

Alpha Chymotrypsin in Cataract Surgery

ELBYRNE G. GILL, M.D.
Roanoke, Virginia

TO JOAQUIN BARRAQUER,[1] credit is given for discovery of the practical use of a-chymotrypsin proteolytic enzymes in cataract extraction. For some time Barraquer has been attempting to obtain zonulotomy by chemical means. In recent years he has demonstrated in controlled animal and human studies that alpha chymotrypsin, when injected in the anterior chamber of the eye, exerts a lytic action on the zonules. This makes the removal of the lens intracapsularly with considerable ease and reduces the complications to a minimum. Another distinct advantage is that it can be used in young individuals and in some cases in children. However, at the present time he does not advise this use in children under ten years of age, as they are likely to have vitreous loss. He made some careful studies and enucleated a human eye six hours after death. He used alpha chymotrypsin in solutions of different strengths varying from 1:5,000 to 1:50,000 and did control studies with physiological saline. Solutions of 1:50,000 proved to have ineffective zonule lysis properties.

RESULTS AND CONCLUSIONS OF BARRAQUER'S WORK

In over two hundred cases, Barraquer demonstrated in controlled studies that alpha chymotrypsin is capable of lysing zonules without adversely affecting the hyaloid membrane, lens capsule or other intraocular structures. The post operative course has always been uneventful and there have been neither inflammatory reactions in the surrounding tissues nor any changes in the transparent elements.

DESCRIPTIONS OF PRODUCT

Alpha chymotrypsin is a proteolytic enzyme obtained from the bovine pancreas. Alpha chymotrypsin, as CHYMAR, was introduced by the Armour Pharmaceutical Company as an anti-inflammatory agent for systemic use and for use in such ophthalmic diseases as conjunctivitis, uveitis, retinitis and to hasten the absorption of hematomas of the periorbital tissues.

From the Department of Ophthalmology, Gill Memorial Eye, Ear and Throat Hospital.

Presented at the meeting of the Virginia Society of Opthalmology and Otolaryngology, Charlottesville, April 30-May 1, 1959.

TECHNIQUES OF OPERATION AS DESCRIBED BY BARRAQUER

(1) He suggests lavage with 1 c.c. of a 1:5,000 chymotrypsin solution under the iris inferiorly.

(2) Peripheral or complete iridectomy.

(3) Lavage with 1 c.c. of solution through iridectomy. Wait at least two minutes and then irrigate the anterior chamber with 2 c.c. of physiological saline solution. The extraction is done with erisophake and then he suggests lavage with acetylcholine to contract the pupil. If the zonules are still intact, lavage with additional 1 c.c., wait an additional two minutes, irrigate with 2 c.c. physiological saline and reapply erisophake instrument.

MATERIAL

The preparation which we have used since December 29, 1958, was obtained through Armour and Company. From the first operation up to the present time, twenty-nine patients for cataract extractions were subjected to the procedure in which chymotrypsin was used intraocularly in a concentration of 1:5,000. The patients' ages varied from twenty to ninety-two years of age. We are not using this preparation on any patient under ten years of age. After the preliminary preparation of the patient with sedation, with akensia and retrobulbar injection, and topical application of pontocaine, we make a conjunctival flap of 180 degrees 3 mm. from the limbus. After making the keratome incision, we enlarge the incision for 180 degrees and place three sutures at three o'clock, nine o'clock and twelve o'clock through the cornea and sclera using 6-0 chromic catgut. We do not perform an iridectomy or irodotomy. After raising the cornea with a traction suture, the solution flows over the entire surface of the lens. The pupil is well dilated and permits a great amount of enzymes to reach the zonule portion of the lens. If there is any question as to whether the solution has reached every portion of the anterior chamber we do not hesitate to use an additional amount with a medicine dropper endeavoring to reach the zonular surface above.

RESULTS

Twenty-nine patients were subjected to cataract surgery in which a-chymotrypsin was used intra-

ocularly. In twenty-five out of twenty-nine cases, the lens was delivered intracapsularly. Four failures resulted from rupture of the lens capsule before extraction was attempted. Thomas-Dimitery erisophake and the sliding method was employed.

COMMENT

In order to obtain the best result, the eye should be reasonably soft prior to surgery. In hypertonic eyes, the pressure should be reduced by the use of Diamox intravenously prior to surgery. It is most important to have a well dilated pupil which allows the enzymes to reach the posterior chamber thus excelerating the degree of zonulosis. Wound healing is at normal rate. The only reference reviewed on this subject in the American literature is an excellent article by A. Benedict Rizzuti[2] in the Archives of Ophthalmology, Vol. 61, January, 1959. The success we have had in a limited number of cases leads us to feel that this preparation will serve as a valuable adjunct to the ophthalmic surgeon who is performing intracapsular cataract extractions.

References

1. Barraquer, J.: Enzymatic zonulolysis: Contribution to Surgery of the Lens, presented before the 65th Congress of the French Ophthalmological Society, Paris, May, 1958.
2. Rizzuti, A. Benedict: Arch. Ophth. 61: January, 1959.
3. Personal correspondence with Troutman, Richard, New York City, New York.

711 South Jefferson Street
Roanoke, Virginia

Caution When Giving Antibiotics

A government scientist has urged physicians to take great care when administering antibiotics. Henry Welch, Ph.D., said that between 17 and 20 million persons in the United States may be allergic to large doses of the drugs and react unfavorably.

His report appears in the August 22 Journal of the American Medical Association.

Dr. Welch, who is director, division of antibiotics of the Food and Drug Administration, feels that the danger of persons receiving too many antibiotics has been increased by the use of the drugs in fields other than medicine.

"There are now over 400 preparations of antibiotics available for clinical use, and they run the gamut of injectables, ointments, powders, sprays, capsules, syrups, ear and eye drops, suppositories, troches, and tablets."

Also the drugs are being used in animal nutrition for promotion of growth in swine, chicks, and poults, as well as being employed as crop sprays to prevent blight in apples, pears, walnuts, and beans.

"Antibiotics have saved tens of thousands of lives in the past 15 years, and the reduction in the rates of mortality, morbidity, and complications of diseases has affected the lives of millions.

"Nevertheless, with such major advances in therapy and consequent wide use, unfortunately we have to face the accompanying untowards side-reactions that invariably follow."

He pointed out that normally these side-effects are not too severe but can be uncomfortable. They run the range from mild rashes, asthmatic attacks, and in some instances to fatal shock.

The scientist said that the Food and Drug Administration along with other agencies have taken steps to alleviate this problem as it pertains to direct and indirect injection of antibiotics in foods.

It is, he concluded, up to the physician to take proper steps in administering the drugs in order to avoid these unfavorable side-reactions.

Complete A-V Block in Acute Rheumatic Fever

A Case Report

SIDNEY A. TYROLER, M.D.
JOSEPH BEINSTEIN, M.D.
Arlington, Virginia

AN UNUSUAL CARDIAC EMERGENCY in an 18 year old, white male, prompted a review of the literature on the subject of complete A-V Block in acute rheumatic fever. We were surprised to find that such a case has not been mentioned in the recent clinical monographs on this subject. In a recent review by Penton, Miller and Levine[1] on the clinical features of complete heart block, not one case is listed in association with acute rheumatic fever in any age group. In addition Rowe and White[2] have also presented a comprehensive report on 278 cases of complete A-V Block, and in no instance has this finding been concomitant with acute rheumatic fever. In Massell's[3] recent article on the clinical picture of acute rheumatic fever, including an analysis of 457 initial attacks, complete A-V Block is not listed as a clinical finding in any instance.

The controversial status of adreno-cortical hormone therapy in acute rheumatic fever is well known. In view of some well documented reports on the treatment of complete A-V Block by steroids, it seemed that this particular manifestation of acute rheumatic fever would respond dramatically to adequate steroid schedules. This proved to be the case in the following cardiac emergency:

CASE PRESENTATION

M.C., an 18 year old, white male, student was referred to one of us (S.A.T.) for further medical diagnosis and treatment following the onset of syncope while eating in the school cafeteria. The school physician noted a heart rate of 30/per minute, and the student was hospitalized for further observation. An electrocardiogram taken 3-13-58 at 9:30 P.M. (Fig. 1 A.) revealed A-V Dissociation with ventricular rates of 98/min. and atrial rates of 97/min. Shortly thereafter a diffuse erythematous morbilliform rash over the chest was noted, and a diagnosis of measles was made. The student was transferred home to Arlington for further medical care.

On March 15, 1958, he was seen at his home in shock with a pulse rate of 30/min. Adrenalin 0.5 c.c. of 1:1000 was given hypodermically, and the patient was immediately hospitalized.

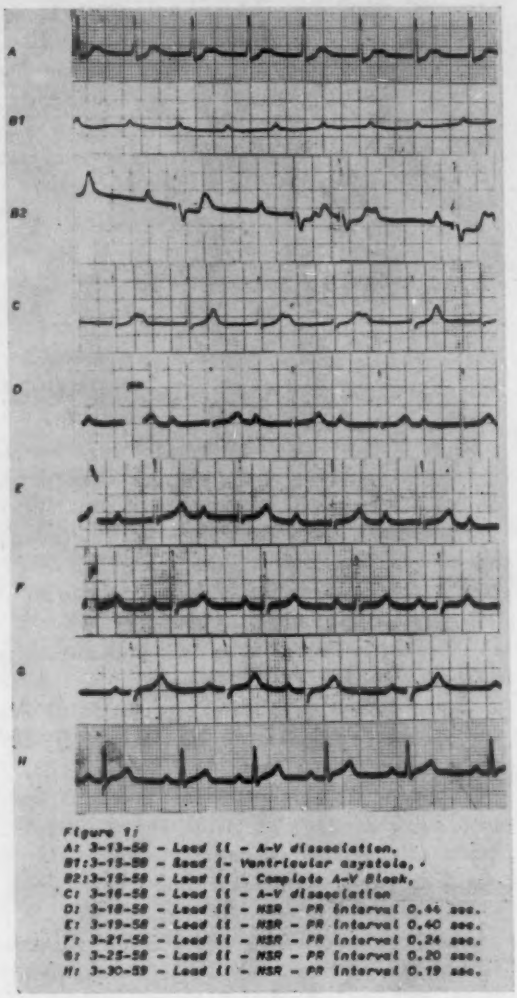


Figure 1:
A: 3-13-58 - Lead II - A-V dissociation.
B1:3-15-58 - Lead I- Ventricular asystole, .
B2:3-15-58 - Lead II - Complete A-V Block.
C: 3-16-58 - Lead II - A-V dissociation
D: 3-18-58 - Lead II - NSR - PR interval 0.44 sec.
E: 3-19-58 - Lead II - NSR - PR interval 0.40 sec.
F: 3-21-58 - Lead II - NSR - PR interval 0.24 sec.
G: 3-25-58 - Lead II - NSR - PR interval 0.20 sec.
H: 3-30-58 - Lead II - NSR - PR interval 0.19 sec.

Physical examination:

On admission physical examination revealed a well developed, well nourished, 18 year old, white male in shock manifested by pallor, sweating, restlessness and apprehension. Positive findings were

limited to the following: T. 98.4°; P. 30/min; R. 34; B.P. 90/20. Periodic ventricular asystole was observed correlated with transient periods of confusion and disorientation.

1. Cardiac findings were confined to variation in the intensity of the first heart sound at the apex. No murmurs were audible at this time. There was no cardiac enlargement to percussion.

2. Extremities: The right ankle and right knee were warm, swollen and tender. The left knee was painful on motion but there were no objective joint changes. No subcutaneous nodules or rash were present at this time.

On the initial electrocardiogram at Arlington Hospital, a complete A-V Block was observed with long periods of cardiac asystole. (Fig. 1 B1 & B2) While awaiting the initial observations, the patient was started on 50 mgm. of I-V Neosynephrin in 500 c.c. of 5% glucose in distilled water. Following further cardiac consultation, I-V cortico-steroid therapy was instituted. Previous measures consisted of Adrenalin, Neosynephrin and Isuprel as required to maintain a systolic blood pressure of about 100 mm. of mercury.

Hydrocortisone, 200 mgm., was administered intravenously over the next six hours followed by prednisolone 15 mgm. every six hours over the next week. Within 12 hours of initiation of I-V Hydrocortisone, A-V Dissociation with a heart rate of 72/min was recorded on the next electrocardiographic study. (Fig. 1 C.) At this time, fever and polyarthritis were present in addition to the dramatic manifestations of Carditis.

Initial laboratory data:

Blood studies:

Hematocrit — 45; Hemoglobin — 13.2G.; WBC — 22,300; P. — 80%; L. — 14%; M. — 6%; C-RP — 4+; A.S.T. — 333 Todd units; S-GOT — 450 units; V.D.R.L. — negative.

Urinalysis:

Specify gravity — 1.028; Albumin — ++++; Sugar — negative. Microscopic: 2-4 WBC; 1-3 RBC; 4-5 finely granular casts/HPF.

Throat culture:

B hemolytic Streptococci; Alpha hemolytic Streptococci and Neisseria catarrhalis.

Course in hospital:

The polyarthritis subsided within two days of the institution of steroid therapy. The temperature curve returned to normal on the second day, and shock and complete A-V Block did not recur after the first 10 hours. A tracing taken on March 18, 1958, (Fig. 1 D.) revealed a return to normal sinus rhythm, but first degree A-V Block was manifest by a P-R interval of 0.44 sec. Otherwise, the tracing was not remarkable. By March 21, 1958, (Fig. 1 F.) the P-R interval was 0.24 sec. During this period the serum transaminase fell from 450 units to 59 units. By March 21, 1958, the WBC had dropped to 12,500, but the sedimentation rate continued to remain at 30/min. Subsequent urinalyses proved to be normal on recovery from the shock state.

On March 24, 1958, a grade iii apical, systolic murmur was noted for the first time. A chest x-ray on March 26, 1958, was described as normal, there being no evidence of alteration of the cardiac silhouette.

The patient was discharged on March 28, 1958, on prednisolone 10 mgm. every six hours, and this was very gradually reduced until the time of discontinuance on May 1, 1958, representing a total treatment time of six weeks. Oral penicillin for prophylaxis was continued after discharge from the hospital. His tolerance of this therapy appeared to rule out penicillin hypersensitivity as a cause of his initial rash.

A follow-up examination on March 30, 1959, revealed no evidence of rheumatic fever residuals or persistence of rheumatic activity. Physical examination was essentially negative. No cardiac murmurs were audible. Chest x-ray and electrocardiogram (Fig. 1 H.) were well within normal limits.

DISCUSSION

It appears to us that the diagnosis of acute rheumatic fever in this case was incontrovertible. Two major manifestations were present along with fever, leucocytosis, elevated sedimentation rate and S-GOT, 4+ C-RP, positive throat cultures and moderately positive ASL Titers. In treating the acute cardiac emergency Adrenalin, Isuprel and other vasopressors were of only temporary value. Complete A-V Block persisted until the administration of I-V Hydrocortisone which probably averted a fatal outcome. It is highly unlikely that a spontaneous remission would occur this quickly in the early phase of acute rheumatic fever. The drop in S-GOT was extremely interesting. The simultaneous disappearance of fever, acute polyarthritis and dramatic general improvement in the patient was primarily attributable to steroid therapy. It is also noteworthy that no rebound occurred with extremely gradual withdrawal of prednisolone. The one year follow-up revealed no resid-

uals of acute rheumatic fever, and the patient was clinically well. It may well be that an early diagnosis made possible by the Stokes-Adams-Morgagni attacks had resulted in a much earlier application of this type of therapy. This may also have been a factor in the excellent results.

SUMMARY

1. A case of acute rheumatic fever presenting as a Stokes-Adams-Morgagni Syndrome is described and its rarity emphasized.

2. An excellent therapeutic result was achieved by the early administration of adreno-cortical hormones with a dramatic disappearance of the complete A-V Block.

BIBLIOGRAPHY

1. Penton, I. B., Miller, H. and Levine, S. A.: Some Clinical Features of Complete Heart Block. Circulation 13: 801, 1956.
2. Rowe, J. D. and White, P. S.: Complete Heart Block: A Follow-up Study. Ann. Int. Med. 49-2, 260, 1958.
3. Massell, B. F., Tyler, D. C., Roy, S. B.: The Clinical Picture of Rheumatic Fever. Am. J. Cardiol. 1-4, 436, 1958.

3801 North Fairfax Drive
Arlington, Virginia

Better Medicolegal Relations

Revision of the law to keep pace with scientific and medical progress has been called for by a California specialist in legal medicine.

Writing in the October 10th Journal of the American Medical Association, Dr. LeMoyne Snyder, Paradise, Calif., said, "In large measure our laws continue to be hostile to medical jurisprudence.

"Britain during the 19th century made great advances in this field and established chairs of legal medicine in all of its leading medical schools. However, in the United States, in only a few places have the states yet made any demand for competent medical experts to come to the aid of the law."

He was especially critical of the coroner system, which has survived almost unchanged from the English monarchy of the Middle Ages before the days of the Magna Carta and the crusades. Coroners rarely possess either medical or legal knowledge, "which would seem to be a basic requirement."

A part of this system is the outmoded coroner's inquest—a tribunal in which a jury of six persons is charged with the determination of the cause of the death and naming of the person responsible. "Generally the first six persons on the nearest park bench are chosen and they take a quick glance at the remains through an open door and listen to what evidence the coronor has at hand. This procedure seems to be founded on the theory that ignorance multiplied by six equals intelligence."

Too many other purely scientific matters are being decided by public forums and political processes, he continued. For instance, a city wants to improve the health of its people by adding fluorine to its water supply. This is a question which has long since passed from the realm of scientific dispute, yet the matter is generally decided on the basis of letters to the editors.

Dr. Snyder noted that some advances are being made. Some states have instigated the medical examiner system in place of the coroner system. Psychiatry is having an effect on law. The 100-year-old test for sanity—that at the moment of the crime, the accused had a sufficient degree of reason to know he was doing an act that was wrong—already has been replaced in New Hampshire and the District of Columbia. In 1954 the United States Court of Appeals for the District of Columbia ruled "that the accused is not criminally responsible if the unlawful act was the product of mental disease or mental defect."

All of the multiplicity of branches of scientific medicine are advancing at a headlong rate. Diagnostic and surgical procedures which are commonplace were undreamed of only 10 years ago.

"Slowly but surely the laws are being molded to make use of this vast expanse of scientific knowledge in the administration of justice," Dr. Snyder concluded. "As people generally become aware of these advances the laws ultimately have to conform to encompass and use new and more reliable information. Laws never create public opinion, but laws sooner or later always have to conform to public opinion. . . . Science has provided the tools, it is up to society to see that the law uses them."

Annular Pancreas in a Three-Day-Old Child

Case Report

WEBSTER P. BARNES, M.D.
Richmond, Virginia

THE SUBJECT of annular pancreas is not new but is of sufficient rarity perhaps as to merit the case report of a three-day-old infant. An article by Kiesewetter and Koop, Children's Hospital, University of Pennsylvania, appearing in *Surgery*, July, 1954, states that a total of sixty-two operative cases had been reported in the literature and in that article there was a record of twelve cases operated upon under the age of ten days. Six of these died. "Annular pancreas is a congenital malformation and the embryologists (Shapiro) state that the pancreas arises from two outgrowths of that portion of the gut which is later the second part of the duodenum, the large dorsal anlage becoming the tail, body and superior portion of the head of the pancreas. It carries a main excretory duct. The smaller ventral anlage is composed of two parts—left and right. The left normally atrophies and disappears while the right becomes the inferior portion on the head of the pancreas. It contains the duct and joins the duct and dorsal anlage at one end and the common duct on the other, thus forming the terminal part of the duct of Wirsung. The entire pancreas makes a clockwise rotation in developing so that the dorsal and ventral anlage assumes different positions ultimately from those at the start. It is this rotation that gives rise to certain concepts of the origin of annular pancreas." Lecco in 1910 postulated that the right ventral anlage might, in certain cases, be adherent to the duodenum then in the process of rotation clockwise it would be stretched and provide an encircling piece of tissue which would develop as an annular pancreas. Baldwin agreed with this concept basically but felt that in addition the left ventral anlage, which should ordinarily atrophy, might persist and develop so as to complete the circle of constricting pancreas. Yet another theory of annular pancreas is a simple hypertrophy thesis, as promulgated by Tieken in 1901. In this the ventral and dorsal anlage merely hypertrophied and joined as an encirclement of the duodenum. I leave this argument entirely to the embryologists.

The symptoms of annual pancreas are those of obstruction, and of the sixty cases reported in the literature to this point about one-third have been in infancy and childhood, twelve of those being under ten days, and about two-thirds have occurred in adults. Formerly, the diagnosis was established at autopsy, and it is stated freely in the literature that it is often associated with other malformations of a widely varying nature. Substantially, the picture is one of duodenal obstruction and in infancy often complete, whereas varying degrees of obstruction incident to this condition have been reported in later life.

Characteristically, the x-ray shows a "double bubble" effect, the stomach being the larger of the two bubbles and the dilated duodenum the smaller. It is said that this is seen just as readily with a plain upright film in the newborn as it is when opaque media are used. In adults one can only postulate as to why this congenital lesion might wait sixty years before presenting symptoms. We are all quite familiar with varying degrees of pancreatic thickening and fibrosis, and I would assume, therefore, that these later life obstructions are due to changes within the encircling band of pancreatic tissue. It is now widely agreed that the best procedure is a shunt operation around the constricting lesion; namely, duodeno-jejunostomy or gastro-jejunostomy. Since this encircling band of pancreatic tissue has been shown to practically always contain either the main pancreatic duct or a sizable pancreatic duct, fistulae all too often have resulted from attempts at exising the annulus itself.

CASE REPORT

Three-day-old male infant is seen at the request of Dr. William H. Cox and Dr. Nancy King. This is the third child of this mother. Birth was entirely normal. The mother, however, has multiple sclerosis. The history was to the effect that the child had had frequent meconium stools since birth but it had vomited all nourishment offered. An x-ray had been made prior to the time I first saw the child, which showed complete obstruction of the second portion of the duodenum. No barium was seen below that

point. The child was moderately dehydrated. The hemoglobin was 21.4 grams, probably a result of hemoconcentration. The abdomen was not distended. The degree of obstruction was so definite in this case that immediate surgery was advised, with the pediatrician concurring. Gastric lavage was done prior to surgery.

Under ether anesthesia, the abdomen was opened through an upper right rectus incision. (The child had three attempts of vomiting before relaxation occurred.) The first part of the duodenum was pulled markedly to the left and seemingly could not be freed of the pancreatic mass. There was a malrotation of the colon. The mesentery of the small bowel seemed to be placed much too high in the abdomen and to originate from too short a source, giving the impression of a small bowel knot high in the mid abdomen. The bowel below Treitz's ligament was carefully searched for evidence of atresia. None was found. There was a small amount of bile-stained fluid within the abdomen, and I wondered if we were dealing with some anomaly of the biliary excretory system as well. A gastro-enterostomy was done using No. 4 intestinal suture and No. 5 silk on the outer layers. The child returned to its room in good condition and subsequently had an uneventful recovery.

1000 West Grace Street
Richmond, Virginia

Bad Advice to Executive

Telling a junior executive to "slow down or you'll have a heart attack" may be adding just one more reason for him to remain tense and anxious. He is already suffering from an emotional—and perhaps psychosomatic—disorder, which "is itself a stress, and a disgrace in our society's thinking," according to Dr. Richard E. Gordon, Englewood, N. J.

Warning the executive of serious emotional illness, heart attacks or early death—all of which he has already seen in his friends and relatives—merely adds a new worry. The new worry causes further tension and produces new symptoms. Then the new symptoms add to the fears and a vicious cycle is under way.

The only way to help such persons is by clear explanation of how their symptoms and disorders came about and by practical suggestions about ways they can change their lives to meet the problems, Dr. Gordon wrote in the August 8 Journal of the American Medical Association.

It might even be possible to help these persons through organized classes—especially in rapidly growing suburban areas where the rate of emotional and psychosomatic disorders is highest.

He based his suggestion on findings of a study comparing the rates of psychosomatic ailments in a rapidly growing suburb with that of more stable communities. The suburb had a much higher rate of psychosomatic ailments (ulcers, heart disease, and high blood pressure), probably because many of the residents are "upwardly mobile." They are striving to rise socially and economically "out of the working class into subexecutive white-collar jobs and lesser managerial positions." But they face a serious problem in their rise toward greater executive responsibility because they were not "born to the class" as were many of the men who are top executives.

The upwardly mobile person has to learn everything the hard way—by personal trial and success or error. He "may have a great deal to lose and knows it. If his decision backfires he may lose his job and his future and be thrown back to the insecurities of his past. He wears his responsibility heavily." In addition, he has usually been sensitized by the stresses of his early life, which makes him more susceptible to psychosomatic ailments.

The financially and socially well-to-do person, however, has usually been burned less in his early years. Also, he is often well established so that "he cannot be much hurt if he makes a bad decision. He has not much to fear from the past, present or future, so can relax at the end of the day, can exercise, look after his health and play."

Psychosomatic illness and emotional disorder will disappear in the upwardly mobile person only when he feels he is secure and is able to relax. However, before that time comes, he may have undergone irreversible physical changes. To prevent this, he must learn to cope with his problems as he goes along. It is the physician's responsibility to teach him this, Dr. Gordon concluded.

The Addition to Our Armamentarium of the "Fruit of the Spirit"

An Interpretation in the Light of Galatians 5:22-23:

"But the fruit of the Spirit is love, joy, peace, longsuffering, gentleness, goodness, faith, meekness, temperance: . . ."

HAROLD W. MILLER, M.D.
Woodstock, Virginia

IT WAS this writer's good fortune to study pharmacy before he studied medicine— and I often recall the course in Pharmocognosy, dealing with crude drugs derived from the animal and plant kingdoms. Crude drugs derived from the plant kingdom are listed in the Morphological Classification as: roots, tubers, tuberous roots, rhizomes and roots, bulbs, corm, barks, woods, pith, leaves, leaflets and leaf buds, stems, leaves and flowering fruit tops, flowers and floral parts, herbs, entire plant drugs, seeds and seed parts, trichomes, gums, mucilage, resins, gum resins, clear resins, balsams—*and fruits*. From this classification it will readily be seen that practically every part of the plant or tree yields some constituent, used in one form an another in the treatment of sick people. For example, in the light of investigation in recent years, one is led to suspect that the American Indians, in their use of various concoctions, were unknowingly using some of the "miracle drugs". It will indeed be most interesting to see the presently undreamed of discoveries that must be forthcoming, as the scientists and pharmaceutical chemists probe deeper and still deeper into the remaining unexplored region of plant constituency, as the unknown future in Pharmacognosy is unveiled and revealed.

That part of the plant classified as *fruit* I have deliberately listed last, this because, while thinking about the use of the fruit of the plant as a medicine, the thought occurred to me that the *"fruit of the Spirit"*, as described by St. Paul in the text quoted above, is even now available, and that if we, as physicians, will but manifest this fruit in our lives, and so recommend and prescribe it to our patients, the healing results, in many cases, may be as spectacular as those noted with the use of the "miracle drugs." I do sincerely believe that the adjunct of the *"fruit of the Spirit"* to our present armamentarium must undoubtedly be to avail ourselves of a most helpful weapon in fighting illnesses.

At first thought on reading Galatians 5:22-23, it would appear that St. Paul should have said, "But the *fruits* of the Spirit *are* . . ." rather than, "The *fruit* of the Spirit is. . ." However, on analyzing these two verses more closely, one realizes that God would like for each life to be characterized by *all nine varieties* of the "fruit of the Spirit", rather than to have one person's life manifest love, another's joy, still another's peace, a fourth's longsuffering, and so on. It is the incorporation of *all nine* of these spiritual qualities in one's life that leads inevitably to abundant living, and lessens the gap between what we are and what we should be. The purpose, therefore, of this interpretation is to refocus the light on, and to reemphasize the challenge of, Galatians 5:22-23, this in such fashion as to encourage us, as physicians, to do our best to portray to men that quality of life which will indicate that a harvest of the "fruit of the Spirit" has in truth been reaped.

Let me underscore here, as I have indicated above, that in adding the "fruit of the Spirit" to our armamentarium, we do not, obviously, add a medicine available in any form that can be given orally or parenterally. Actually, the only way that we, as physicians, can prescribe the "fruit of the Spirit" in the treatment of sickness is by *our own example*, that is to say, by an inspiration and a manner of life faithfully reflecting the "cluster of fruit" *in action*.

* * * * *

When one thinks of a fruit, it is of course logical and natural to think of a seed that must be planted and cultivated in order to produce that fruit. Since St. Paul list *nine* fruits, and since the word PHYSICIAN has *nine* letters, I like to think of each letter in the word PHYSICIAN as representing a seed, which, if planted and cultivated, will result in a harvest of these nine fruits. As, for example:

SEED—	FRUIT—
1. *P*ersonal Interest— —(tends toward)	*Love* (for the patient as a child of God)
2. *H*umaneness— —(issues in)	Gentleness (in ministering to a person, whose physical healing may involve deeply mental and/or spiritual values)
3. (A) *Y*earning to Serve— —(leads to)	*Longsuffering* (in ministration)
4. *S*elf-control— —(spells)	*Temperance*
5. *I*ntegrity— —(yields)	*Joy* (born of an alert but approving conscience)
6. (A) *C*onviction of Divine Resource— —(supports)	*Faith* (in the ultimate issue, whether of life or death)
7. *I*ntrospection— —(compels)	*Meekness* (in the revelation of one's own imperfections and shortcomings)
8. (An) *A*ssurance of Divine Guidance— —(brings)	*Peace* (even in the inevitable presence of conflict)
9 *N*ew Birth— —(is essential to)	*Goodness* (the simple essence of a God-like character and the *sine qua non* of eternal value)

Permit me a series of brief comments.

1. The fruit of *love* refers of course to the *Agapetic* rather than to the Erotic or Philotic type of love; in other words, it refers to that type of love which compels us to regard our patients as children of God and is, therefore, the type of love which we should seek to develop to the fullest. Doing good to others for the simple love of doing good, not for any remuneration that may be ours—this is *Agapetic* love. Imbued with *Agapetic* love, born of a deep personal concern for men, we can wish good and seek good for another, even though that other be an enemy and even at personal sacrifice to ourselves.

2. The seed of *humaneness* results in the fruit of *gentleness*, this in such fashion that our conduct and our manner of dealing with the sick is characterized by a deeply sympathetic and compassionate concern. *Gentleness* has well been likened to kindness—and many years ago Bouvee observed that: "Kindness is a language which the dumb can speak and the deaf can understand." I think, too, of DeSales' observation that: "Nothing is so strong as gentleness; nothing is so gentle as real strength."

3. The seed of *yearning* is *longsuffering* in ministration, that is to say, a burning and continuing desire to represent the Great Physician by giving the best possible service to the sick, this service performed with a magnanimity of spirit that permits one to be tolerant in the presence of intolerance, patient in the presence of persecution, poised in the presence both of criticism and of praise.

4. The seed of *self-control* leads to the fruit of *temperance*. The importance and the need for the planting of this seed of self-control in order to gather a harvest of temperance is, I believe, quite obvious, self-revealing and self-explanatory. Chateaubriand has said that: "The most disastrous times have produced the greatest minds. The purest metal comes from the most ardent furnace; the most brilliant lightning comes of the darkest cloud." Again, McDonald has declared: "To have what we want is riches; to be able to do without is power." The temperate man is the selfcontrolled, the disciplined man, often, though not necessarily always, the man forged in the fires of tribulation and tempered in the waters of adversity.

5. The seed of *integrity* yields a joy that can only be described as supreme happiness and blessedness, that supreme happiness and blessedness—in the language of the Psalmist, that "delight"—experienced only by the man who "walketh not in the counsel of the ungodly, nor standeth in the way of sinners, nor sitteth in the seat of the scornful."

6. *Conviction*—the conviction born of a keen, personal awareness of the availability and value of divine resources—leads inevitably to *faith* in the ultimate issue of all truly dedicated effort. We, as physicians, must believe in our capacity to help the patient; we must believe with a certainty that comes only with a constant awareness of God working in and through our professional skills. Indeed, we must believe with a faith in the Supreme Healer which, even when apparently we fail, remains confident that

our ministrations, in the long count of eternity, have not been in vain.

7. The seed of *introspection* produces the fruit of *meekness*, this as the inventory we should constantly, at least periodically, be taking of ourselves reveals our imperfections, shortcomings, and needs, both personal and professional.

8. The seed of *assurance* bears the fruit of *peace* —a serenity of mind which becomes ours when we are conscious, not only of divine resources as noted above, but also of the detailed reality of divine guidance, always at hand as an inexhaustible but only too frequently untapped reservoir. Peace is the reward, even in the inevitable presence of conflict— an inner peace that passeth all human understanding —when we accept the simple fact that God is with us.

9. The seed of a *new birth* is essential to *goodness*. Sir Philip Sidney has asserted: "Doing good is the only certainly happy action of a man's life." Also, Ruskin has observed that: "It is a good and safe rule to sojourn in every place as if you meant to spend your life there, never omitting an opportunity of doing a kindness, or speaking a true word, or making a friend." Yet such is our human nature that unless and until we shift the center of our existence and service from self to God, in short, *are born again*, we must hope in vain to grasp that fruit of goodness which, as Beecher once wrote, makes "every (charitable) act a stepping stone toward heaven."

* * * * *

In conclusion, just as the Ten Commandments are divided into two tables, the first table dealing with our relationship to God and the second with our relationship to each other, so have the nine varieties of the "fruit of the Spirit" been divided by exegetes and clergymen into three groups: The first group— *love, joy, peace*—dealing with our relationship to God; the second group—*longsuffering, gentleness, goodness*—dealing with our relationship to each other; the third group—*faith, meekness, temperance* —dealing with our relationship to ourselves. Moreover, if we are to reap a rich cluster of the "fruit of the Spirit"—if we are to glorify our Father by good works and a life truly manifesting this "fruit of the Spirit"—we must be firmly rooted and grounded in the Great Physician, Who promised: "If you abide in me, I will abide in you." In short, we may very well say that the ultimate purpose of life is to reap a full harvest of the "fruit of the Spirit." A life so lived, not only by word, but, more importantly, *in deed*, must, by its very influence and inspiration, tend toward the reaping of a similar harvest in the lives of them before whom we daily move and to whom we daily minister.

It is in this conviction that I submit these nine varieties of the "fruit of the Spirit" as a vital addition to our armamentarium, and recommend that we, as physicians, prescribe them by *our own example*. Before God and by His help, we must hold in our hearts and present in our lives a selfless dedication to the service to which we have been called.

Destroy Cleaning Bags

As fall clothes are brought out of storage, their covering plastic cleaning bags again become a major menace. When the bags are removed from the clothing, they should be destroyed. They should be shredded or tied in knots and put in a tightly covered disposal can, an article recommended in the October Today's Health, published by the American Medical Association. They should never be used as make-shift covering for pillows, blankets or mattresses in baby carriages, playpens, or cribs.

The bags with "their softness, silkiness and see-through characteristics" attract children as playthings. Children love to pull the bags over their heads, but when they do, they face possible death.

It appears that an electrostatic charge may be generated by friction from handling the bag. The youngster, while peering through, is apt to have the bag literally grab him through the electrical attraction to his face. If this happens, only prompt intervention of an adult will prevent tragedy. A child can fight back at the material, but he cannot tear it. Dizziness, inability to think, and muscle spasm occur. Breathing becomes more and more rapid. Vomiting with inhalation of undigested food puts an end to this terrible situation.

It was written by Beatrice Schapper, New York.

Public Health....

MACK I. SHANHOLTZ, M.D.
State Health Commissioner of Virginia

Some Broader Aspects of Medical Practice

The practice of medicine is changing rapidly and this change is being brought about by changing times. It is changing, like the pull of gravity, at an ever increasing speed, and in the direction of an ever broader scope. The broader scope encompasses a number of areas which might be summed up by the statement that the emphasis is shifting from disease to health. Historically, the physician's chief and at times his only concern for his patient was the alleviation of pain, suffering, and distress. Today, he is thinking in terms of the prevention of the things that produce these departures from health.

In primitive times man believed that suffering and disease were the result of disfavor with the spirits. He turned to somebody in good standing with them to serve as his ally. Some healthy persons were apparently better allies to the ailing than others. These men became the acknowledged healers or medicine men and there was usually one in a tribe. The patient had faith in him and he accepted the responsibility of making the ill person well, even though he might be courting disfavor with the spirits by interfering with their will. So it was the patient who created the doctor. The more unusual the doctor's appearance, the more exotic his behavior, the more incomprehensible his speech, the more bizarre his treatment, the happier were his patients. They felt assured that they had someone of great skill and power to turn to in their hour of need. The medicine man grew increasingly more impressed with his own powers and grew aloof from the common man. His "cures", resulting mainly from the inherent ability of the organism to survive many diseases and injuries, almost convinced him that he had supernatural powers.

It was the ancient Greek who first saw disease in a sane and impersonal light, viewing it as a reasonable process over which man had some control other than an appeal to the spirits.

Christianity heightened the concept of mercy and taught that those who worked among the sick were doing God's will. This was quite a change from the belief that the ill were being punished by the gods and that those who practiced the art of healing were inviting disfavor on themselves by interfering with this punishment.

Even wars and the birth of nationalism had their effects on the meaning of health and on the practice of medicine. Though the concept developed slowly, disease and injury have come to be regarded as losses to military and national strength that can be avoided.

Through various influences medicine has changed and progressed with time. Lawrence J. Henderson remarked that it was about 1910 when a random patient with a random disease and attended by a random doctor had about a 50-50 chance of benefiting from the encounter. Since then the odds have gone up in favor of the patient.

One of the most revolutionary changes in the contemporary practice of medicine is the shift in emphasis from disease to health. Up to comparatively recent times the physician devoted his entire career to ministering to the sick; it was the only means he knew to combat ill health. This type of physician will be long remembered for the very considerable contribution he has made to the health of his patients but, as with so many other aspects of our rapidly changing world, he is rapidly becoming out-dated.

Tomorrow's physician will not be able to survive if he does not have the time or the inclination to work with his patients for the attainment of optimum health. He will not be able to survive because the very persons responsible for his existence—his patients—will demand this. As research and experience bring more knowledge of health maintenance, disease prevention and rehabilitation, the public will expect to receive these benefits without delay.

This is not to say that the practicing physician is doing nothing in the overall field of promoting better health for his people. But it is a fact that some are not doing all that needs to be done.

Industry has seriously adopted this new concept of emphasizing health rather than illness. Industrial medicine began with the treatment of accidental injuries and minor infections and the installations of safety devices to prevent accidents. Lately it has gone into the field of mass health maintenance. They regard disease with matter-of-fact impatience as a

condition ranging from a nuisance to an outright tragedy. They regard health as a state ranging from a demonstrable economy to a civic right.

An example in the spirit of our ideals is the practice of our pediatricians and obstetricians; they feel it vitally important to maintain the health of our children and our mothers-to-be at the highest possible level. A recent survey by the American Academy of Pediatrics showed that pediatricians devote 54% of their time to disease prevention and health promotion and less than half their time to caring for the sick child.

A question sometimes arises with regard to the distinctions between medicine, preventive medicine, and public health. Today there is a common-sense recognition that preventing and ameliorating disease and disability is the business of everyone in medicine. There is developing a general recognition that a partnership between public health physicians and private practitioners is vital to maintain the good health of all. A few still present the old argument that public health activities compete with the practice of private physicians. The truth is quite the opposite. Each year, thousands upon thousands of patients, who would not have done so otherwise, stream into the offices of private physicians because they were sent or influenced to go there by public health workers.

Preventive medicine has been outlined as consisting of three phases or areas of activity:

(a) the prevention by biological means of certain preventable diseases, such as acute communicable and deficiency diseases;

(b) the prevention of some of the consequences of preventable or curable chronic diseases, such as syphilis and tuberculosis;

(c) the prevention, retardation, or amelioration of some of the consequences of nonpreventable and noncurable diseases, such as many cardiac ailments.

It becomes evident that, in many cases, preventive medicine becomes all but indistinguishable from clinical medicine. On the other hand, private practitioners are more and more finding their way into activities that can be classed only as public health: they participate in mass vaccination campaigns; they serve diligently on medical committees of voluntary health agencies; they donate their services to worthy social causes; they participate in mass screening programs; and they supply priceless case-study information for epidemiologic investigations in public health.

The principles and methods of epidemiology are well established and these are applicable to the study of noncommunicable as well as communicable diseases. This is an area of medical knowledge that contributes to our understanding of the etiology and control of diseases and should be a part of the fundamental training of all physicians.

Accidents are the leading cause of death among persons up to 35 years of age in the United States. The Virginia State Department of Health has established a program aimed at minimizing death and disability from all types of accidents. In the study area, both physicians and the public health workers are engaged in epidemiologic research, in the collection and analysis of accident data, and in development of accident-prevention activities. Without the full cooperation of the practicing physicians, this study would be impossible.

Such partnerships would continue to grow but they need deep roots in the rich soil of common aspirations. The world of medicine is poised for a mighty onslaught against human misery. Advances in the conquest of cancer, diseases of the heart, and arthritis appear to be just in the offing. Research, depending on how wisely we develop it and how promptly we use it, can mean much or mean little in our attack.

The number of medical school graduates in training for careers in the basic medical sciences is small. Unsolved problems of crucial importance to man and his diseases are still to be approached in the field of medicine. The spirit of adventure that is inherent in a search for understanding must be made available to the student if he is to sense the satisfactions of an academic career. Research is probably as old an activity as teaching. Workers are needed in this field. The etiology of many common diseases is still obscure; their causes need to be known if we are to prevent and properly treat them.

We can do much with the knowledge that we have but we need to know more to prevent, control, and rehabilitate. We cannot fully meet this need until research reveals techniques for preventing and treating many of the major health problems that exist today.

If American medicine is to live up to its great expectations, it must accept a broader view of the nation's needs and the profession's leadership role. As a profession, an important first obligation is to medical education. Medical education in this country and many others is in a period of revolution, the inevitable result of rapid scientific, social, and eco-

nomic change. Experimental programs, initiated since 1946, have proved their worth and their influence is beginning to spread. There is no shortage of brains in American medical education. The central goal of the undergraduate medical school, defined at the First World Conference on Medical Education in 1953, is "to turn out someone fundamentally equipped to be a practicing doctor." The period of training should not be specifically directed toward the training of a general practitioner or a specialist or a public health official or an administrator, but should provide the student with a foundation for his after-career in any branch of medicine.

Under this new concept of medical education the student is introduced to human beings, both sick and well, early in his course of study. A preventive, health-conserving point of view is built into the "well-prepared" physician.

Medicine has been called "the ablest of the professions." Certainly, as physicians in America, we inherit a glorious past, a distinguished tradition of scholarship, ethics, and service to humanity. What of the future? Will we uphold that tradition?

References

Burney, Leroy E., Physicians for Tomorrow, presented at the Thirteenth Martin Memorial Lecture, American College of Surgeons, Chicago, Oct. 1958.

Gregg, Alan, Challenges to Contemporary Medicine, Columbia University Press, New York, 1956.

Hanlon, John J., Principles of Public Health Administration, The C. V. Mosby Company, St. Louis, 1950.

Hilleboe, Herman E., from "The President's Page", New York State General Practice News, April, 1959.

Monthly Report of Bureau of Communicable Disease Control

	Sept. 1959	Sept. 1958	Jan.-Sept. 1959	Jan.-Sept. 1958
Brucellosis	3	3	20	16
Diphtheria	2	0	8	14
Hepatitis	52	32	345	221
Measles	50	186	14532	21357
Meningococcal Infections	2	1	67	70
Meningitis (Other)	102	43	297	199
Poliomyelitis	93	37	236	98
Rabies (In Animals)	10	9	129	221
Rocky Mountain Spotted Fever	2	7	33	32
Streptococcal Infections	362	379	7078	5502
Tularemia	2	3	16	28
Typhoid	0	7	14	34

New Radioactive Test Shows Liver Damage

A new test using radiocative dye to measure the function of the liver was described in the July 4 Journal of the American Medical Association.

The test, which is much simpler than older tests, opens many new possibilities in the study of liver disease and damage, according to Drs. Robert A. Nordyke and William H. Blahd, University of California Medical Center, Los Angeles.

Among the conditions in which the test is used are cirrhosis, hepatitis, alcoholism, and common bile duct obstructions.

Radioactive rose bengal is injected into the blood stream. The speed with which it disappears from the blood indicates the degree of liver damage or disease. The liver plays a role in removing the dye from the blood. Its disappearance is measured by a standard radiation counting device held against the head behind the ear.

The head was chosen as the site of measurement because it contains a rich and stable blood supply which is distant from the large and changing concentrations in the abdomen.

Older tests using rose bengal and other substances necessitated the withdrawal of blood from the veins for checking the color of the blood. The value of these tests is restricted, the doctors said, to liver disease without jaundice because of difficulty in reading color changes and because of possible injury to an already damaged liver by large doses of dye.

The new test circumvents these problems. Since detection of changing concentrations of dye depends on levels of radioactivity rather than color, valid results are extended to all types of liver damage despite the presence of jaundice. In addition, the minute quantities of both radioactivity and dye allow multiple tests to be done without harm.

Mental Health....

Psychiatric Nursing Experience for Nursing Students Inaugurated at Western State Hospital

MARGARET L. CAVEY, R.N.

. Nursing students from three of Virginia's diploma schools of nursing, Lynchburg General Hospital, Johnston Memorial Hospital, Abingdon, and Winchester Memorial Hospital, Winchester, began a twelve-week course in Psychiatric Nursing at Western State Hospital, Staunton, on September 1, 1959.

The stimulus for this new program came in February, 1959, when the Department of Mental Hygiene and Hospitals was requested by some Virginia Schools of Nursing and the Virginia State Board of Nurse Examiners to offer psychiatric experience to affiliate nurses in our State Mental Hospitals.

In March, 1959, the State Hospital Board authorized the establishment of the first program at Western State Hospital for twenty nursing students per rotation this year, with the view of gradually expanding the program to include the other State Mental Hospitals.

Before this program became a reality, much preliminary planning was necessary. The Virginia Department of Mental Hygiene and Hospitals, with the cooperation and support of the Virginia State Board of Nurse Examiners and the National Institute of Mental Health, arranged a conference on the subject of "The Joint Responsibility of Schools of Nursing and State Mental Hospital Personnel in Improving Patient Care". Representatives from all of the Virginia State Mental Institutions and the majority of the diploma schools of nursing met at the John Marshall Hotel, Richmond, on June 25-26, 1959, to discuss a three-month program in psychiatric nursing for nursing students.

A joint meeting of representatives of the three schools of nursing and Western State Hospital was held at Western State Hospital in July to discuss detailed plans for implementing the program as of September 1st. A Contract of Agreement was prepared and agreed upon mutually by the Cooperating Agency, Western State Hospital, and the Schools.

CAVEY, MARGARET L., *Director, Psychiatric Nursing, Department Mental Hygiene and Hospitals, Richmond.*

Approved for publication by Commissioner, Department Mental Hygiene and Hospitals.

A new position was established at Western State Hospital for a Director of the Student Nurse Program on August 1st. Mrs. Georgia Stewart, R.N., was employed as of this date to develop the program and make necessary arrangements for the arrival of the students on September 1st.

The twelve-week course in psychiatric nursing for the diploma program students prepared by Mrs. Georgia H. Stewart, R.N., is as follows:

Emotional health is a major problem in our society. Nursing care is based on the fact that an individual is the product of his culture and functions as an integrated whole. A function of nursing is to foster growth of personality in the direction of health. A nurse's ability to give supportive care to patients is proportionate to her degree of self-awareness and her ability to understand what goes on in the inter-personal situation in order to use this interaction constructively.

The psychiatric nursing experience can assist the student nurse in developing these insights, abilities and skills and give her an opportunity to continue the expansion of her own personality by participating as a democratic member of various groups concerned with patient care.

The objectives of the course are as follows:

1. To appreciate the interdependence of intellectual, emotional and physical development and integration of personality.
2. To understand the more common types of psychiatric disorders—their etiology, symptomatology, course, treatment and nursing care.
3. To gain a knowledge of human behavior and the needs and attitudes expressed by behavior.
4. To develop in the student an awareness of self and her relationship to others.
5. To develop skill in using the inter-personal situation to provide a therapeutic atmosphere in which the patient can learn more satisfying ways of living with people.
6. To grow in an appreciation of social and cultural problems associated with mental illness, community facilities for meeting them and the nurses responsibility in promoting mental health.

UNIT I ORIENTATION:

1 or 2 weeks 20-30 hours

Purpose: To aid the student in:

1. developing an awareness of her ideas and attitudes concerning those who have health problems in the area of living with others and the group of people who give aid and assistance in resolving these problems.
2. becoming acquainted with the physical plant at Western State Hospital, as well as its history, objectives, therapeutic facilities and personnel that are available for her learning experiences.
3. learning terminology commonly in use and peculiar to a psychiatric setting so that she may be able to communicate more clearly with coworkers.
   a. Free response test-discussion
   b. Conferences with department representatives
   c. Tours of grounds, buildings and departments
   d. Use of glossary
   e. Films
      (1) Nurse-patient relationships
      (2) Rx attitude
      (3) Search for happiness

UNIT II INTER-PERSONAL RELATIONSHIPS IN NURSING:

3-4 weeks 30-40 hours

Purpose: To aid the student in:

1. developing an understanding of personality structure, psychosexual development of personality, human needs, human behavior, etc.
2. expanding her own self-awareness
3. learning the dynamics involved in an interpersonal situation in order to pick out problems manifested by behavior so that she can learn skills in using the inter-personal situation to improve her care to patients.
   a. Organization of personality
      (1) levels of consciousness
      (2) aspects of personality
   b. Psychosexual development
      (1) infancy to geriatrics
   c. Psychodynamics
   d. Human needs
   e. Observation and meaning of behavior
   f. Communication
   g. Projective techniques
   h. Films
      (1) Child development films
      (2) Social-sex attitudes
      (3) Marriage is a partnership
      (4) Retire to life

UNIT III CLINICAL PSYCHIATRIC AND PSYCHOTHERAPEUTICS:

3-4 weeks 30-40 hours

Purpose: To aid the student in:

1. learning the classification and symptoms of psychiatric disorders.
2. learning some of the theories concerning the cause and treatment of mental disorders.
   a. Principles of psychiatric nursing
   b. Classification of mental diseases
      (1) organic psychoses
      (2) functional psychoses
      (3) the neuroses
      (4) personality disorders
      (5) emotional crutches
   c. Types of treatments used
      (1) psychotherapy
         (a) individual
         (b) group
      (2) psychoanalysis
      (3) physical treatments
         (a) E.S.T.
         (b) tranquilizers
         (c) O.T., R.T., etc.
   d. Films
      (1) City of the sick
      (2) Breakdown
      (3) Feelings of hostility
      (4) Feelings of rejection
      (5) Search for sanity

UNIT IV COMMUNITY ASPECTS:

1-2 weeks 20-30 hours

Purpose: To aid the student in:

1. learning principles of mental health which she can practice and teach to others.
2. learning of the needs of communities for facilities, funds, personnel and research for meeting the mental health problem.
3. becoming aware of existing community facilities concerned with promoting mental health and/or the rehabilitation of those who have problems in the area of emotional health.
   a. Principles of mental health
   b. Mental health as a social problem
   c. Rehabilitation
      (1) acceptance of self
      (2) use of abilities remaining

d. Field Trips
   (1) Woodrow Wilson Rehabilitation Center
   (2) Virginia School for the Deaf and Blind
   (3) Lynchburg Training School and Hospital
e. Films
   (1) Back to Life
   (2) Remotivation

The students will be assigned to selected clinical areas where the learning experience will be a part of the total psychiatric nursing experience.

Although a final evaluation of the program will not be made until summer of 1960, it is anticipated that the program will be an asset to the hospital in a number of ways:

1. Patient care will be improved by the increased quality of nursing service rendered by the students. The assignment of students to specific units will not in any way reduce the number of nursing personnel regularly assigned to these areas.
2. Nursing students will acquire a better understanding of the care and treatment of patients in Virginia State Mental Institutions.
3. The program will serve as a stimulus to nursing personnel as well as other staff members because the nurses, doctors, psychologists, and social workers will participate in the teaching program.
4. It is hoped that a number of graduate nurses will seek employment in Virginia Mental Institutions as a result of their satisfying student experiences and that this new program will thus serve as an excellent avenue for recruitment.

Silicon Hair Curlers

Silicon hair curlers may produce an invisible but terribly painful skin disease among hairdressers, two University of Pennsylvania dermatologists have warned.

Writing in the August 8 Journal of the American Medical Association, Drs. Walter B. Shelley and Donald M. Pillsbury said the disease consists of excessively sensitive fingertips, although the skin shows no sign of disease.

The sensitivity is due to tiny particles of silica which become embedded in the top layer of the skin, irritating the sensory nerve endings. The particles rub off silica or sand-coated hair curlers, which have replaced plastic curlers in many beauty shops.

The widespread use of these curlers suggests that such an invisible skin disease "may become common among beauticians unless efforts are taken to eliminate this new occupational hazard."

They have seen one case—in a 40-year-old woman, who first noted a marked sensitivity of the fingertips to light touch. This began on the side of the tip of the right fourth finger. Eventually all the fingertips became involved. Pain and inflammatory changes were absent, but exquisite tenderness to touch eventually forced her to stop working.

At first it was thought the patient had a neurological or vascular condition. Treatment with a variety of local anesthetic and steroid creams was unavailing.

Finally microscopic examination of the fingertips showed the tiny particles embedded in the skin. Then the patient remembered that the condition had begun about the time she had started using sand-coated curlers instead of plastic curlers.

Treatment consisted of removing the very top layer of skin by microsurgery.

Pre-Paid Medical Care....

Edited by
RICHARD J. ACKART, M.D.

Group Health Association

During May of this year the Group Health Federation of America (formerly Cooperative Federation of America) and the American Labor Health Association held a joint meeting in New York. At the meeting the two organizations merged, and adopted a new name: Group Health Association of America.

The membership of the new association is composed basically of various group health plans in the country, such as Labor Health Institute of St. Louis, Group Health Plan of St. Paul and Health Insurance Plan of Greater New York, and certain labor organizations.

At the business sessions of Group Health Association of America the membership adopted a legislative program generally in the form submitted to them by their counsel, Mr. Horace Hansen of St. Paul. This legislative program is quite ambitious and may be summarized as follows:

1. *Federation Legislation:*

Vigorous support for the Forand Bill and for a bill sponsored by Senator Humphrey (S. 2009 of last Congress), which proposed to provide long-term low interest rate loans to nonprofit health service plans. If enacted, S. 2009 would have provided for the use of tax money to construct and to maintain clinics and related facilities for closed panel prepaid plans.

2. *State Legislation:*

To urge adoption in all of the state legislatures of a seven-point program, including:

(a) a statute legalizing group health plans and over-ruling the corporate practice of medicine rule and any conflicting provisions of the insurance laws;

(b) a pathology statute requiring all tissue removed during surgery to be examined by an approved pathologist, and a written report filed with the hospital and with the State Department of Health;

(c) a hospital non-discrimination statute prohibiting hospitals, public or private, from limiting medical staff privileges solely because a physician is employed by or associated with a closed panel plan;

(d) a statute called "the Medical Anti-Trust Law" specifically providing that concerted action against any form of medical prepayment plan is an unlawful conspiracy;

(e) a statute adding two lay persons to the State Board of Medical Examiners;

(f) a statute adding one or more lay members to the State Board of Health; and

(g) finally, a statute creating a study commission to survey and report upon the shortage of physicians and to recommend means of "solving this urgent problem."

Quite clearly, the foregoing is an extremely ambitious legislative program. Equally clearly, it utilizes the oblique approach toward fostering closed panel practice and crippling both the private practice of medicine and "free choice" prepayment methods.

In addition to this positive legislative program, Group Health Association also intends to try to repeal those statutes that now exist that limit prepaid medical or hospital service plans to Blue Cross or Blue Shield type. In Virginia and in a number of other states the Blue Cross and Blue Shield enabling acts are somewhat exclusive in form and effectively prohibit other types of prepayment service plans from competing with the "Blues". In states like Virginia, Group Health Association will no doubt make its most strenuous efforts to enact its foot-in-the-door measures.

During 1960, and as time goes by, one or more of the Group Health Association's proposals may be presented to the legislature of Virginia, and we should be alert to this possibility.

Current Currents

SPECIAL REPORT ON ACTIONS OF THE HOUSE OF DELEGATES OF THE MEDICAL SOCIETY OF VIRGINIA

THE NEW PRESIDENT of The Medical Society of Virginia is Dr. Allen Barker, Roanoke. The President-Elect is Dr. Guy W. Horsley, Richmond and the First Vice-President Dr. Robert S. Hutcheson, Jr., Roanoke. Elected as Second Vice-President is Dr. Russell Buxton, Newport News, and Third Vice-President, Dr. Mallory S. Andrews, Norfolk.

IMMUNIZATIONS: A resolution was adopted urging that all recommended immunizations be administered as early in life as possible, and that the profession administer the immunizations to its patients at a reasonable fee, or if the patient is unable to pay—without fee. It also called for physicians to cooperate with public health efforts in encouraging immunizations and asked that local medical societies also take every possible action to support immunizations. The resolution opposed the passage of legislation which would make specific immunizations a requirement for school admission.

SOCIAL SECURITY: Social Security again came in for its share of attention and the House recommended that, following publication of the proceedings of the Wednesday morning portion of the program (Social Security Panel), an official poll be conducted on compulsory Social Security. It was further declared that the results of this poll should be observed by the Society's Delegates to the AMA.

RADIATION HAZARDS: The House approved a report of the Committee on Radiation Hazards which called for legislation to declare the public policy of the State with respect to radiation and radio active materials. The proposed bill would create a state radiation control agency and a committee to assist this agency. It would prescribe the powers and duties of the agency and committee, prohibit certain practices and provide penalties for violations.

SENIOR CITIZEN CONTRACT: A special "senior citizen" contract, proposed by the Virginia Medical Service Association (Richmond Blue Shield), was approved. One of the principal features of the contract is a reduced fee schedule. Income limits for full service benefits are $1,500 for the individual and $2,500 for husband and wife.

SECOND INJURY LAW: The House again went on record as advocating the passage of "second injury" legislation.

COMMITTEE SAFEGUARDS: The House agreed that the Society should seek the enactment of legislation designed to provide legislative safeguards for those committees obtaining information for statistical purposes. A good example would be the Committee on Maternal Health, which is constantly seeking to develop statistics on the causes of maternal deaths, etc.

STATE BOARD OF MEDICAL EXAMINERS: The Legislative Committee was requested by the House to assist the State Board of Medical Examiners in obtaining legislation which would provide the Board with a freer hand in establishing qualifications of applicants and the fees for examinations. The Board is now using the examination questions devised by the National Board of Medical Examiners and its expenses have greatly increased. The State Board must now pay the National Board $10.00 for each applicant.

FOOTBALL INJURIES: The House called attention to the great possibility of major and minor injuries in high school football and requested local medical societies to use every means to see that a physician is in attendance at all high school football games.

PRESIDENT'S AWARD: A special resolution was adopted nominating Dr. Leroy Smith, Richmond, for the annual award made each year by the President's Committee on Employment of the Physically Handicapped.

RUSSELL COUNTY PROGRAM: Also approved was a recommendation that the Society urge further expansion of the program currently used in Russell County. This program features general medical clinics staffed by local physicians with the help of local public health officials. Such programs would, of course, be subject to the consent and cooperation of local medical societies.

GENERAL PRACTITIONER OF THE YEAR: Dr. Montie Lewis Rea was elected to this honor. The House also accepted a recommendation that the "General Practitioner of the Year" award be discontinued in the future.

DELEGATES TO THE AMA: Dr. W. Linwood Ball, Richmond, and Dr. Allen Barker, Roanoke, were re-elected as Delegates to the American Medical Association. Dr. W. Callier Salley, Norfolk, and Dr. Russell Buxton, Newport News, were chosen as Alternates. New members of Council are Dr. Thomas W. Murrell, Jr., Richmond, Dr. William N. Thompson, Stuart, Dr. Dennis P. McCarty, Front Royal, and Dr. W. Frederic Delp, Pulaski.

* * * * *

This summary covers only a few of the important subjects considered by the House of Delegates. Please read the complete minutes in the next issue of the Virginia Medical Monthly.

Miscellaneous....

A New Epidemiological Study of Cancer

Many specific causes of cancer have come to light by the simple observation of an unusually high incidence of the disease among a group of people exposed to some particular environmental factor. The classic example is the observation made by Percival Potts in 1775 of an extremely high incidence of cancer of the scrotum among chimney sweeps. From this he concluded that heavy exposure to coal soot could cause the disease and that it would be prevented by reducing exposure.

The subsequent decline in cancer of the scrotum following changes in the method of cleaning chimneys (and the passage of laws prohibiting the use of children as chimney sweeps) is strong evidence that Potts' interpretation of his data was correct. A century and a half later two Japanese scientists succeeded by experiment in producing cancer of the skin with soot. Subsequent experiments together with epidemiological evidence have shown that prolonged exposure was required (e.g., many years in man or many months in mice). It appears now that the probability of cancer occurring as a result of exposure to a carcinogenic agent depends upon the potency of the agent, the degree of exposure, the duration of exposure, and the "susceptibility" of the individual.

Since Potts' time, a considerable number of other causes of human cancer have been discovered. These include many different organic and inorganic chemicals as well as prolonged over-exposure to x-rays. In each instance, the discovery resulted from the observation of a high incidence of cancer of some specific site among a group of people, all of whom were exposed to the same agent.

Considering what is already known about causes of cancer in human beings, and considering the circumstances which led to their discovery, there is reason to suspect that many cases of cancer result from exposure to enviromental factors not yet identified as carcinogenic for human beings. Once these factors are determined, there is hope of preventing the disease by reducing exposure to the responsible agents just as aniline dye workers are now protected from exposure to betanaphthylamine to avoid the risk of bladder cancer.

One approach to the problem is to learn as much as possible about the environment, habits and family history of a very large number of people and then ascertain the later incidence of cancer in relation to these factors. By starting with a population of several hundred thousand people in all walks of life, the number of individuals falling into specific exposure groups should be sufficient to yield reasonably reliable cancer incidence rates. If any of these groups have an unusually high incidence of cancer of some specific site, then further studies can be undertaken to determine whether a direct causal relationship exists.

This is the basis for the nationwide epidemiological study undertaken by the American Cancer Society under the direction of Dr. E. Cuyler Hammond, Director of Statistical Research, American Cancer Society.

Several hundred counties in 25 states, including Virginia, have been selected as study areas. The selection was made in such a way as to give satisfactory geographic distribution. Cities of various sizes and types as well as rural areas are included.

In each of these areas, volunteer workers of the American Cancer Society are being trained for the enrollment and tracing of subjects. Each volunteer will enroll about ten families (i.e., households) in which there is at least one person over the age of 45. All members of these families who are over the age of 30 will be asked to fill out a questionnaire. In order to keep the information strictly confidential, each subject will put his questionnaire in a sealed envelope for transmittal to the research center in New York. The volunteer workers will not question the subjects and will not be permitted to see the completed questionnaires.

The national enrollment of subjects began in October 1959 and should be completed within a short time. Once a year thereafter for the next six years, every subject will be traced. Causes of death will be ascertained from death certificates. The physician who signed the death certificate will be requested to supply additional medical information on cases where cancer is mentioned on the death certificate. In addition, once every two years the subjects will be requested to answer a brief questionnaire concerning the illnesses occurring during the intervening period.

Two questionnaires will be used, one for men and the other for women. These include sections on general characteristics (age, race, marital status, reli-

gion, etc.), family history, history of diseases, physical complaints, habits and exposure of various sorts. On the form for women, special attention is given to questions relating to the breasts and female genital organs. On the form for men, special attention is given to occupation and occupational exposures. Questions relating to place of residence will be utilized to investigate the possible effects of air pollution. Information on twins in addition to information on family history and on husbands and wives should provide data on possible inherited factors.

While the major purpose of the study is to investigate factors of possible etiologic significance, it is hoped that it will also yield information of value in relation to lay education. The subjects are asked detailed questions about "present physical complaints" and the answers will be analyzed in relation to cases of cancer diagnosed in the subsequent several months. In order to avoid biasing the subjects, questions are asked about physical complaints which are probably not related to cancer as well as about complaints which may be symptomatic of cancer. Assuming, as is probable, that positive answers to certain of these questions are highly related to the presence of cancer, the data should be of value in persuading people with such complaints to see their doctor immediately. The aim is to reduce the factor of "patient delay" in the diagnosis of cancer.

The Virginia Division of the American Cancer Society is participating in the study. Nationally, it is planned to enroll five hundred thousand families, of which twenty-five thousand families will be enrolled in Virginia during the period October 12 to November 21, 1959.

ROBERT J. FAULCONER, M.D.
Norfolk, Virginia
Chairman, Cancer Prevention Study
Virginia Division, American Cancer Society

Artificial Kidney

The artificial kidney can be used to treat just about anyone, whether he is very old, very young, or very ill. Dr. Willem J. Kolff and his associate, Dr. William A. Kelemen, Cleveland Clinic Foundation, said if the machine is skillfully used it carries little danger.

Their statement appears in the October 3rd Journal of the American Medical Association.

The artificial kidney consists of a cellophane coil resting in a stainless steel tub containing a special solution. A plastic tube is connected to a leg artery and the blood is forced into one end of the cellophane coil. The blood flows through the coil and back into the body through a tube connected to a vein in the arm.

The machine duplicates the work of the kidneys, removing poisons and chemicals from the blood. It is used in uremia and other conditions in which the kidneys fail to work. It is also used when a person has been poisoned, since it can remove poisonous substances 20 times faster than the kidneys.

All major medical centers have the machines and a trained team of physicians to operate them.

The changes in blood volume produced by the use of the artificial kidneys can cause shock or abnormally rapid blood movement, the doctors said. These have been considered to be especially dangerous for the very young, the very old or the very ill. However, skillful use of the machine can prevent them.

The machine should be used whenever there is the slightest possibility of recovery, they said, adding, "When the recoverability of a patient is questionable, he should be given the benefit of the doubt."

The advantages and almost certainty of clinical improvement whenever uremia or fluid retention play a part in the illness far outweigh the alleged dangers of the machine.

Book Announcements . . . .

Books received for review are promptly acknowledged in this column. In most cases, reviews will be published shortly after the acknowledgement of receipt. However, we assume no obligation in return for the courtesy of those sending us same.

What Next, Doctor Peck? By JOSEPH H. PECK, M.D. Prentice-Hall, Incorporated Englewood Cliffs, New Jersey. 1959. xi-209 pages. Price $3.50.

Synopsis of Ophthalmology. By WILLIAM H. HAVENER, B.A., M.D., M.S. (Ophth.), Professor and Chairman, Department of Ophthalmology, Ohio State University; Member, Attending Staff, University Hospital, Columbus; etc. The C. V. Mosby Company, St. Louis. 1959. 288 pages. With 189 illustrations. Price $6.75.

Synopsis of Ear, Nose, and Throat Diseases. By ROBERT E. RYAN, B.S., M.D., M.S. (ALR), F.A.C.S., Department of Otolaryngology, St. Louis University School of Medicine; Associate Otolaryngologist, St. John's Hospital, St. Louis; etc. WILLIAM C. THORNELL, A.B., B.M., M.D., M.S. (ALR), F.A.C.S., Assistant Professor, Department of Otolarnygology, Cincinnati College of Medicine; Staff Member, Cincinnati General Hospital; etc. HANS VON LEDEN, M.D., F.A.C.S., F.I.C.S., Assistant Professor Otolaryngology, Northwestern University Medical School, Chicago; Associate Professor of Otolaryngology, Cook County Graduate School of Medicine; etc. The C. V. Mosby Company, St. Louis. 1959. 383 pages. Illustrated. Price $6.75.

Regulation of Cell Metabolism. Ciba Foundation Symposium. Editors for the Ciba Foundation G. E. W. Wolstenholme, O.B.E., M.A., M.D., B.Ch., and Cecilia M. O'Connor, B.Sc. Little, Brown and Company, Boston. 1959. xii-387 pages. With 109 illustrations. Price $9.50.

Textbook of Physiology. By K. M. BYKOV, G. Y. VLADIMIROV, V. Y. DELOV, G. P. KONRADI, A. D. SLONIM. Edited by Academician K. M. Bykov. Foreign Languages Publishing House, Moscow. 1958. 763 pages. Illustrated.

Your Mind Can Make You Sick or Well. How to Let the Wonderful Powers of Your Mind Bring You Magnificent Health and Complete Well-Being. By CURT S. WACHTEL, M.D. Prentice-Hall, Incorporated, Englewood Cliffs, New Jersey. 1959. xii-244 pages. Price $4.95.

Synopsis of Treatment of Anorectal Diseases. By STUART T. ROSS, M.D., F.A.C.S., F.I.C.S., Secretary of the American Board of Proctology; Fellow and Past President of the American Proctologic Society; etc. The C. V. Mosby Company, St. Louis. 1959. 240 pages. Illustrated. Price $6.50.

Surgery of the Foot. By HENRI L. DUVRIES, M.D., Clinical Instructor in Surgery, Chicago Medical School; Attending Surgeon, Columbus Hospital, Mother Cabrini Hospital and Frank Cuneo Hospital; etc. Foreword by Karl A. Meyer, M.D. Introduction by Edward L.Compere, M.D., The C. V. Mosby Company, St. Louis. 1959. 494 pages. With 403 figures. Price $12.50.

501 Questions and Answers in Anatomy. By STANLEY D. MIROYIANNIS, B.S., M.A., Ph.D., F.A.A.A.S. F.I.A.S., Professor of Anatomy and Chairman of the Department, Still College. With an Introduction by Ernest V. Enzmann, Ph.D., Associate Professor of Histology and Embryology, Still College. Vantage Press, New York. 1959. 332 pages. Price $5.00.

The Power of Sexual Surrender. By MARIE N. ROBINSON, M.D., Doubleday & Company, Garden City, New York. 1959. 263 pages. Price $4.50.

Carcinogenesis. Mechanisms of Action. Ciba Foundation Symposium. Editors for the Ciba Foundation G. E. W. Wolstenholme, O.B.E., M.A., M.B., B. Ch., and Maeve O'Connor, B.A. Little, Brown and Company, Boston. 1959. xii-336 pages. With 48 illustrations. Price $9.50.

Insulin Treatment in Psychiatry. Proceedings of the International Conference on the Insulin Treatment in Psychiatry held at the New York Academy of Medicine, October 24-25, 1958. Edited by Max Rinkel, M.D., Boston, Massachusetts, and Harold E. Himwich, M.D., Galesburg, Illinois. Philosophical Library, New York. 1959. xxix-386 pages. Price $5.00.

The Modern Family Health Guide. Edited by Morris Fishbein, formerly Editor, Journal of the American Medical Association; Editor, Excerpta Medica; Medical Editor, Britannica Book of the Year. Doubleday & Company, Garden City, New York. 1959. xviii-1001 pages. Price $7.50.

A Cookbook for Diabetics. Recipes from the Ada Forecast. By DEACONNESS MAUDE BEHRMAN, published by the American Diabetes Association, New York. Edited by Leonard Louis Levinson. 1959. 171 pages. Price $1.00.

A Doctor's Life of John Keats. By WALTER A. WELLS, M.D., Vantage Press, New York. 1959. 247 pages. Price $3.95.

A History of Neurology. By WALTHER RIESE, M.D., Associate Professor Psychiatry and Neurology; Associate Professor of the History of Medicine; Chairman of the Department of the History of Medicine, Medical College of Virginia, Richmond. Foreword by Felix Marti-Ibanez, M.D., New York. MD Monographs on Medical History Number Two. MD Publications, Inc., New York. 1959. 223 pages. Cloth. Price $4.00.

As in his other notable books, *The Conception of Disease, Principles of Neurology* and *La Pensée Morale en Médicine,* the author again in this History of Neurology brings us instantly face to face with the major achievements, problems and character of his subject.

Upon completing the book, one cannot escape a sense of liberation from the weighty trappings of both antiquated historical presentations and obsolete mechanistic and diagrammatic pedagogy of recent neurology. This entirely fresh approach is nevertheless paradoxically faithful to traditional medical concepts in its emphasis on the medical history, genesis of symptoms, diagnosis, prognosis and therapy. The author in chapters on the history of the nervous im-

pulse, on the reflex action and especially on the doctrine of cerebral localization presents documented evidence of the diverse paths of development these concepts took. Dr. Riese has an uncanny facility for deriving the essence of an author's thought and its underlying philosophical implications and he often expresses it in a single meaningful word or phrase. Thus we learn of Hughlings Jackson's "compensation" (understood to be simply the continuation of function despite a destroying lesion) as compared to the recent precarious idea of "taking over" of functions in recovery by brain structures never used before for the lost function. Again we move from Aristotle's "small changes" to Brown-Séquard's "distance reactions" and to Monakow's "diaschisis".

This teaches and assists us to look beyond the merely clinical and therapeutic techniques to find the really essential and meaningful contributions of an author. Dr. Riese represents the ultimate of modernity in his relating and synthesizing medico-scientific problems with philosophico-metaphysical problems. Thus the author begins with the interpretation of the nervous system by the ancients on purely metaphysical grounds, moving then to the ancient and recent versions of the doctrine of the seat of the soul, and finally to the problem of mind-body relationship in terms of contemporary science. The author openly acknowledges the intensely personal character of an historical work as he shows the undulations of medical thought which have swung from the most idealistic to the most materialistic ideas about human sensation and movement. He shows in this book the path his own school of thought has taken toward recognizing both the greatness as well as the limitations of human intelligence, advising us where to connect and where to disconnect science and man. He always leaves room for better understanding the problems of man asserting that observations of history as well as experimentation teach that functions use the structures but are not generated by them. Finally, quoting Kant, he points out the fallacy of assuming the residence of thought in a particular brain locus since this would mean the soul "would have to make itself the object of its own intuition and would place itself outside itself". By so doing the author denies to the reader his "handy formulas" thus forcing us to face "the deeper problems implied in the interrelation of mind and matter".

This work illustrates that through the discipline of neurology it is possible to find a better "understanding of man, his vital manifestations and behavior under conditions we describe as his diseases". It does this by tracing in an orderly fashion the development of dynamic, fundamental concepts that have shaped neurology and by this emphasis it disestablishes the shallower aspects of anatomico-materialistic trends. In fact it elevates man ultimately as the master of life and does not condemn him to be victimized by the limitations of a single organ—the central nervous system—in health and disease. As a consequence, the physician reader will be stimulated to exercise his intellectual freedom thus profiting greatly by his experience of clear and logical analysis as he reads this book.

The book is appended with lists of journals specializing in neurology and neurological societies and associations. An excellent chronology of selected eminent neurologists, their main contributions with correlations to major events in world history is also given. This chronology supports the theme of the main work and does not pretend to name every eminent and worthy neurologist unless his contributions were significant to the development of the *concepts* (not clinical applications) of neurology.

The book is recommended reading for physicians especially neurologists, and for medical historians.

GEORGE E. ARRINGTON, JR., M.D.

The Sedimentation Rate of Human Erythrocytes. Its Basic Concepts. Its Value as a Differential Diagnostic Agent. Its Multiple Clinical Applications. By FRANK WRIGHT, M.D., F.A.C.P., F.A.S. Vantage Press, New York. 1959. 43 pages. Cloth. Price $2.50.

I feel that this book would be of little interest to physicians. It is poorly written, and very little of the book is devoted to a discussion of the sedimentation rate. Most of the book is filled with extraneous material and contains many statements which I believe to be inaccurate.

ROBERT S. BOATWRIGHT, M.D.

Woman's Auxiliary....

President—Mrs. Walter A. Porter, Hillsville
President-Elect—Mrs. F. Clyde Bedsaul, Floyd
Vice-Presidents—Mrs. A. B. Gravatt, Jr., Kilmarnock
Mrs. M. M. Bray, Suffolk
Mrs. H. I. Kruger, Norfolk
Recording Secretary—Mrs. Robert B. Keeling, South Hill
Corresponding Secretary—Mrs. J. Glenn Cox, Hillsville
Treasurer—Mrs. James M. Moss, Alexandria
Publication Chairman—Mrs. Custis L. Coleman, Richmond
Directors—Mrs. Charles A. Easley, Jr., Danville
Mrs. John R. St. George, Portsmouth
Mrs. Lee S. Liggan, Irvington

Biographical Sketch

MRS. WALTER ALBERT PORTER, *President*
Woman's Auxiliary

Virginia McMillan Porter, Hillsville, the wife of Dr. Walter Albert Porter, was born at Nathans Creek, Ashe County, North Carolina, the daughter of Manley Eugene McMillan, of Ashe County and Rosa Eudora Hash, of Fox, Grayson County, Virginia, the third of five children. In early childhood her parents moved to Galax, where she attended grammar and high school. She graduated from Radford State Teachers College, receiving a Bachelor of Science degree, and taught in the elementary schools of Virginia and North Carolina until 1934 when she was married to Dr. Porter at Lexington, Virginia.

Dr. and Mrs. Porter located in Hillsville soon after their marriage and since that time he has been engaged in the general practice of medicine. They have two attractive daughters: Patricia Anne, who graduated from Salem Academy, Winston-Salem, North Carolina, and is now a senior at Virginia Polytechnic Institute where she is majoring in Home Economics with specialization in Nutrition and Dietetics and is active in campus activities and organizations. Suzanne Lee, who was President of the Student Body and an Honor Graduate of Salem Academy, is a sophomore at Duke where she is pursuing a scientific course and is a member of Delta Delta Delta sorority, Sandals, and other campus groups.

Sharing with her husband an intense interest in community and medical affairs, Mrs. Porter organized the Woman's Auxiliary to the Southwestern Virginia Medical Society in 1950, served as its first President, and has continued her interest in its progress by serving continually on its Board.

In the State Auxiliary she has served on the Board as Today's Health Chairman, Councilor to the Southern Medical Auxiliary 1956-1958, during which service she brought recognition to our State by receiving honorable mention in the State-wide observance of Doctor's Day in 1957 and in 1958 received first place for this observance and also first place for the best State Exhibit, and President-Elect 1958-1959.

Mrs. Porter is active in the Presbyterian Church, having served as teacher, President of the Women of the Church, District Chairman, Presbyterial President, received Honorary Life Membership in recognition of her service, Chairman of Synodical Committee on Stewardship, Secretary to Board of Trustees of Children's Home and served on Board of Trustees of Conference Grounds of Abingdon Presbytery.

She is also active in other organizations, having been Organizing Regent of Appalachian Trail Chapter, D. A. R., and is now serving as Director of State District IV, D. A. R., Past Matron of Hillsville Chapter, and Grand Representative from Vir-

ginia to the State of New York Grand Chapter, Order of the Eastern Star, and Past-President of the Hillsville Woman's Club.

She lends her talent and untiring efforts to any cause that stands for the upbuilding of the community and improving the fortune of her fellowman. She is a gracious hostess, a fine homemaker, and has among her hobbies sewing and the collection of old china and glass.

Richmond.

The Auxiliary to the Richmond Academy of Medicine opened the year on September 18th with luncheon and an orientation program in our new meeting place, the First Presbyterian Church on Cary Street Road.

Program chairmen, Mrs. Harold Goodman, Mrs. William M. Lordie, and Mrs. William F. Maloney, had prepared a skit, "Medical Auxiliary in Review", to acquaint members with the work of the officers and committees. The program opened with an hilarious monologue—a parody on clubwomen, by Mrs. Maloney. Following this, we were shown the inspirational movie, "Helping Hands for Julie", which demonstrated the many and varied members of a big hospital staff who participate in the diagnosis, care and rehabilitation of a patient. This is one of the movies shown our future nurses groups.

Volunteers were called for to sit in the Cancer Booth at the State Fair.

Two new members were introduced: Mrs. Philip Jones and Mrs. Robert O. Hudgens.

EDITH V. HAWKINS.

Northampton-Accomac.

The Auxiliary to the Northampton-Accomac Medical Society held its July meeting at the home of Mrs. John R. Freeman in Cape Charles. There were sixteen members and one guest present, and Mrs. R. K. Brown, president, presided.

The slate of officers for 1960 was presented as follows:

President—Mrs. W. C. Henderson
Vice President and President-Elect—Mrs. Milton Kellam
Secretary—Mrs. W. F. Bernart
Treasurer—Mrs. John R. Hamilton

CATHERINE R. TROWER (MRS. E. HOLLAND)
Chairman, Press and Publicity

Chest Blow May Start Arrested Heart

A fast blow on the chest may start a heart beating after it has suddenly stopped. Writing in the July 11 Journal of the American Medical Association, Dr. John T. Brandenburg, Medford, reported a case of cardiac arrest—in which the heart suddenly stops for no apparent reason—that was treated by three strong blows on the left side of the chest.

The most frequently reported means of treating cardiac arrest is by opening the chest and massaging the heart. However, this must be done within four minutes. If the brain is without blood for more than four minutes, irreparable damage will occur.

Dr. Brandeburg's patient was a 64-year-old man who suffered a heart attack on the golf course. Shortly after he arrived at the hospital, he suddenly announced that he was "passing out". No pulse could be felt and heart tones that had been clearly heard a minute before were absent. "A diagnosis of death due to cardiac arrest was made and thoughts of immediate thoracotomy were entertained." However, he remembered that other doctors had advised chest blows, and he struck three blows with his clenched fist.

"Just after the third blow, to my delighted surprise, a strong, but very irregular pulse was felt which soon became regular."

The total period of cardiac arrest was less than one minute. About 10 seconds after the return of his pulse, the patient regained consciousness with the comment, "I must have passed out."

The patient was treated routinely and recovered uneventfully.

Dr. Brandenburg recommended that a chest blow first be tried in cases of cardiac arrest. If there is not an immediate response, other methods should then be tried.

Editorial....

New President

DR. ALLEN BARKER was born in Pittsylvania County in 1903. In childhood he moved with his family to Waco, Texas, but they returned to Virginia a few years later. His early education was obtained in the public schools of Virginia and Texas and his high school education was obtained at Mars Hill College, North Carolina. After receiving his premedical education at Furman University, he entered the Department of Medicine of the University of Virginia and was graduated in 1929.

WILBUR ALLEN BARKER, M.D., *President*
The Medical Society of Virginia

As a student he was a member of Phi Beta Pi Medical Fraternity, the Raven Society, and the Alpha Omega Alpha Honorary Medical Fraternity. During the next four years he served a rotating internship in the University Hospital and completed a residency in the Department of Radiology. In 1932 he married Miss Emily Pugh of Charlottesville. The following year the Barkers moved to Petersburg where Dr. Barker was associated with Dr. Wright Clarkson in the private practice of radiology. He was certified by the American Board of Radiology in 1936. In 1939 he moved to Roanoke to assume the position of radiologist at the Lewis-Gale Hospital following the death of the late Dr. Joseph T. McKinney.

This same year he formed a partnership for the practice of radiology with the writer, a medical school friend who had located in Roanoke in 1930. Dr. Barker was commissioned as a medical officer in the A. U. S. in 1942, served as Chief of Radiology at Fletcher General Hospital, Cambridge, Ohio, and as Chief of Radiology of the 315th General Hospital in the Philippine Islands. He was discharged with the rank of Lieutenant Colonel. After serving as an alternate delegate to the AMA House of Delegates from 1955 to 1957 he served as a delegate from 1957 to 1959. Dr. Barker has served on the Board of Directors of the Roanoke Community Fund and is now a Director of the Lewis-Gale Hospital and the Medical Arts Building Corporation. He is a senior partner in the radiological group of Drs. Peterson, Barker and Smith and, in addition to being Director of the Department of Radiology at the Lewis-Gale Hospital, he is also on the staffs of the Jefferson Hospital, the Roanoke Memorial Hospital and the Shenandoah Hospital and consultant for the Veterans Administration Regional Office. He is a member of the American Medical Association, the Southern Medical Association, the Southwestern Virginia Medical Society, the American Roentgen-Ray Society and the Radiological Society of North America and is a fellow of the American College of Radiology. He is a past-president of the Roanoke Academy of Medicine and the Virginia Radiological Society. The Barkers are members of St. John's Episcopal Church. He is a member of the Roanoke Kiwanis Club, Roanoke Country Club, Farmington Country Club and the Shenandoah Club.

The Barkers have two children. Miss Sandra Barker is a second year student at Mount Vernon Junior College in Washington and Billy, age ten, is a student in elementary school. Dr. Barker is a lover of sports and has been active in golfing, hunting, fishing and boating. For the past few years he has limited his physical activities somewhat and now devotes time to instructing his son, Billy, in these and other sports.

It is hoped that the coming year may be one of happiness for our new president and that under his leadership The Medical Society of Virginia may continue to advance and progress as it has under the guidance and leadership of those who have preceded him.

CHARLES H. PETERSON, M.D.

Society Activities . . . .

Prince William County Medical Society.

This Society was organized on September 12th by a group of physicians and surgeons at Lake Jackson Lodge in Manassas. Dr. Alvin E. Conner, Manassas, was elected president; Dr. Alfred J. Ferlazzo, Triangle, vice-president; and Dr. M. L. Nafzinger, Woodbridge, secretary-treasurer. Sixteen charter members formed the new society. One of the most important points was that it would be the first step in providing the medical organization necessary for setting up the projected Prince William County Hospital. It will also bring closer contact between the physicians in the eastern and western areas of the county.

The formal objectives as outlined by the group are:

To promote continuation of education for the physician.

To provide opportunity for social contact among the physicians.

To promote the medical welfare of the county.

To provide a means for expressing the unified opinion of the physicians.

To improve the public relations of the medical profession.

Medical Association of Valley of Virginia.

At the meeting of this society in Waynesboro on September 24th, Dr. D. E. Watkins, Waynesboro, was elected president; Drs. C. I. Sease, Harrisonburg, Thomas G. Bell, Staunton, and James L. Davis, Waynesboro, vice-presidents; Dr. W. B. Crawford, Woodstock, secretary; and Dr. C. F. Gaylord, Staunton, treasurer.

Dr. Julian Beckwith, University of Virginia, was guest speaker, his subject being Treatment of Cardiac Emergencies.

Roanoke Academy of Medicine.

The first meeting of the Academy was held on October 12th. Reports of the standing committees for the previous year's activities were heard and after this the following officers for the new year were inducted:

President—Dr. William H. Kaufman
Vice-president—Dr. Robert S. Hutcheson, Jr.
Secretary-treasurer—Dr. James G. Snead

The outgoing officers were Dr. Alexander McCausland as President and Dr. Robert F. Bondurant as Secretary-treasurer. Dr. Kaufman's very excellent and detailed presidential address was concerned with some of the problems facing the medical profession from the political, economical and social fronts. He also expressed hope that improved press and public relations could be achieved.

JAMES G. SNEAD, M.D.
Secretary-Treasurer

News Notes . . . .

New Officers of The Medical Society of Virginia.

The annual meeting of The Medical Society of Virginia in Roanoke, October 4-7, is past history now. However, it leaves pleasant memories of a most cooperative local committee and hotel. Nothing was left undone and everyone seemed to have a wonderful time.

There was a registered attendance of nine hundred and eighty-eight, including six hundred and forty members, two hundred and six members of the Woman's Auxiliary and one hundred and forty-two exhibitors.

Dr. Allen Barker, Roanoke, succeeded Dr. Walter P. Adams, Norfolk, to the presidency. Dr. Guy W. Horsley, Richmond, was named president-elect; Drs. R. S. Hutcheson, Roanoke, Russell Buxton, Newport News, and Mallory S. Andrews, Norfolk, vice-presidents; and Robert I. Howard re-elected executive secretary-treasurer. Drs. Linwood Ball, Richmond, and Allen Barker were re-elected as delegates to the American Medical Association; with Drs. Buxton and W. C. Salley, Norfolk, as alternate-delegates. Councilors from the odd numbered districts were named as follows: 1st—Dr. Paul Hogg, Newport News; 3rd—Dr. Thomas W. Murrell, Jr.,

Richmond; 5th—Dr. W. N. Thompson, Stuart; 7th—Dr. Dennis P. Carty, Front Royal; and 9th—Dr. W. Fredric Delp, Pulaski.

Minutes of this meeting will appear in the December issue of the Monthly.

The 1960 annual meeting will be held at Virginia Beach, October 9-12. It's not too soon to begin making your plans to attend.

New Members.

Since the list published in the September issue of the Monthly, the following have been admitted into membership in The Medical Society of Virginia:

Wasfi A. Atiyeh, M.D., Richmond
Donald Wright Barnes, M.D., Roanoke
Phillips R. Bryan, M.D., Lynchburg
Donald Morris Callahan, M.D., Bayside
David Jameson Crawford, M.D., Waynesboro
Ralph Lester Eslick, M.D., Marion
Edward Watts Gamble, III, M.D., Radford
Jack Stiles Garrison, M.D., Norfolk
John Thomas Hearn, M.D., Penn Laird
Lewis Winston Holladay, M.D., Richmond
Janet Haldane Coleman Kimbrough, M.D., Williamsburg
Antonio Fulvio Palmieri, M.D., Richmond
Hugh V. Sickel, M.D., McLean
Bobby Long Smith, M.D., Princess Anne
Howard Elbert Sturgeon, M.D., Princess Anne
Nelson Monroe Tart, M.D., Falls Church
Samuel Albert Tisdale, Jr., M.D., Fairfax
Harmen van der Woude, M.D., Vienna
George Henri van Driem, M.D., Toano

A.M.A. Clinical Meeting.

The American Medical Association's 13th clinical meeting will be held December 1-4 in Dallas, Texas. An attendance of some 3,500 physicians is expected. Planned in cooperation with Dallas physicians, the meeting is designed to help the family physician meet his daily practice problems.

Among the subjects to be discussed on the scientific program are soft tissue injury; whiplash injuries of the neck; diabetes; heart murmurs in children; new laboratory procedures; new resuscitation techniques; premarital and marital counseling; and the problem child.

The scientific program, including lectures, symposiums, medical motion pictures, color television, and nearly 100 scientific exhibits, will be held in the Dallas Memorial Auditorium. There will also be 251 industrial exhibits.

Stuart McGuire Professorship.

In the future, the head of the department of surgery of the Medical College of Virginia will be designated "The Stuart McGuire Professor", in tribute to Dr. McGuire. Announcement of this was made at the annual convocation of the College. Dr. McGuire was one of the leading figures in the development of the College and hospital. He was professor of surgery from 1913 to 1922, president of the former University College of Medicine and then dean of the College until 1919. He was president from 1919 to 1925 and chairman of the Board of Visitors from 1932 until his death in 1948.

The surgeon's chair and desk will be presented to the College by the staff of McGuire Clinic and St. Luke's Hospital. They will be placed in the Stuart McGuire professor's office.

92 Years Young.

Dr. Halstead S. Hedges, Charlottesville, recently celebrated his ninety-second birthday by going to his office just as he has for the past sixty-two years. He graduated in medicine from the University of Virginia in 1892.

Southern Medical Association.

The 53rd annual meeting of this Association will be held in Atlanta, November 16-19, under the presidency of Dr. Milford O. Rouse of Dallas, Texas.

Dr. William E. Moody,

Scottsville, has been elected surgeon general of the national Veterans of Foreign Wars organization. He is a past president of the Virginia VFW.

Dr. B. T. Painter,

Who for some time has been associated with Kecoughtan Veteran's Hospital in Hampton, has returned to Williamsburg for the private practice of medicine.

Norfolk and Western Surgeons.

At the annual meeting of the Norfolk and Western Railway Surgeons Association, held at the Hotel Chamberlin in September, Dr. Harry Hayter, Abingdon, was elected president. Dr. Allen Barker, Roanoke, was named secretary.

Postgraduate Course.

The Department of Ophthalmology of the Emory University School of Medicine announces a postgraduate course in Applied Ophthalmic Pathology

on December 3-4 at the Grady Memorial Hospital, Atlanta, Georgia. Guest lecturers will be Dr. Lorenz Zimmerman of the Armed Forces of Pathology, Washington, D. C.; Dr. T. E. Sanders, Washington University, St. Louis; Dr. J. A. C. Wadsworth of Columbus Presbyterian Medical Center, New York; and Dr. J. T. Godwin of Atlanta.

Dr. William W. Old, III,

Is now associated with Dr. Robert P. Irons, Lexington, in the practice of general surgery. He has been in practice in Norfolk for the past four years.

Dr. William B. Crawford,

Woodstock, has been elected president of the Shenandoah County Unit, American Cancer Society, Virginia Division.

State Health Department News.

New directors for several local health districts in Virginia have been announced by Dr. A. L. Carson, Jr,. Director of the State Health Department's Division of Local Health Services. The appointments are effective October 1.

Dr. W. P. Wagner will replace Dr. E. C. Gates as Director of the health district which includes Amelia, Chesterfield and Powhatan counties.

Dr. Gates will be director of the Dinwiddie-Prince George-Surry-Sussex health district. He will replace Dr. W. R. Ferguson, who is leaving for a year's post graduate study in public health at Tulane University.

Dr. H. J. Rittner will replace Dr. Wagner as director of the Isle of Wight-Nansemond-Southampton-Suffolk health district. Dr. Rittner has been assistant director of the health district which includes Norfolk and Princess Anne counties and South Norfolk and Virginia Beach.

Dr. W. H. Keeler will fill the vacant position of director of the Charles City-James City-New Kent-York-Williamsburg health district, which was caused by the death of Dr. Farley.

American Board of Obstetrics and Gynecology.

The Part I Examinations of the Board are to be held in various parts of the United States and Canada on January 16, 1960.

Candidates notified of their eligibility to participate in Part I must submit their case abstracts within thirty days of notification of eligibility. No candidate may take the Written Examination unless the case abstracts have been received in the office of the Secretary.

Current Bulletins outlining present requirements may be obtained by writing the secretary, Robert L. Faulkner, M.D., 2105 Adelbert Road, Cleveland 6, Ohio.

Dr. John L. Harris, Jr.,

Roanoke, has been named medical advisor to the Virginia Association of Rescue Squads. He is senior medical advisor to the Roanoke Life Saving Crew and is an active member of the Crew.

Dr. Ann H. Williams,

Recently practicing in McKenny and Blackstone, began the practice of pediatrics in Virginia Beach on October 15th. She will be associated with Dr. Kathryn R. Hill and Dr. Robert Venner.

Locum Tenens Available.

Physician, Virginia license, general practice experience, available for locum tenens or temporary position, until January 1960. Write #675, care Virginia Medical Monthly, 4205 Dover Road, Richmond 21, Virginia. (*Adv.*)

Wanted.

One male psychiatrist, under 50 years, Diplomate or Board eligible, to direct privately operated outpatient clinic in Charleston, West Virginia. Salary: $20-$25,000 per annum. Write #625, care the Virginia Medical Monthly, 4205 Dover Road, Richmond, Virginia. (*Adv.*)

Residency Available

In Physical Medicine and Rehabilitation. Affiliated with Medical College of Virginia; our residents have some of their training there. Salaries: Career, $6505 to $9808 p.a.; Regular, $3250 to $4165 p.a. Apply: Manager, Veterans Administration Hospital, Richmond 19, Virginia. (*Adv.*)

Neurology Residencies,

Career and regular, available on active Service. Two neurologists and attending neurologists on staff. Affiliated with two medical schools. Opportunity for teaching, research, and diversified program. Apply: Manager, Veterans Administration Hospital, Richmond 19, Virginia. (*Adv.*)

Obituaries....

Dr. Emmett Francis Reese,

Well-known physician of Courtland, died September 25th, at the age of eighty-two. He graduated from the Medical College of Virginia in 1899 and had practiced in Southampton County since that time. Dr. Reese was a member and past president of the Courtland Ruritan Club and was also a Mason. He was the owner of the Reese Drug Store in Courtland and was active in its management until his death. Dr. Reese was a Life Member of The Medical Society of Virginia, having joined in 1899.

A son, Dr. Emmett F. Reese, III, also of Courtland, survives him.

Dr. Elisha Leavensworth McGill,

Petersburg, died October 4th, at the age of eighty-four. He was a life long resident of Petersburg and received his medical degree from Columbia University, New York, in 1901. Dr. McGill served as the city's medical examiner for a number of years. He was a captain in the army medical corps during World War I. Dr. McGill was a member of the Fifty Year Club of The Medical Society of Virginia, having joined the Society in 1905.

His wife and a daughter survive him.

Memorial to Dr. Vinson

Dr. Porter P. Vinson died on August 29, 1959, of coronary sclerosis and coronary insufficiency at the Mayo Clinic, Rochester, Minnesota. Six days earlier, resection of an abdominal aneurysm had been performed.

From 1936 until his death, he headed the Department of Broncho-Esophagology at the Medical College of Virginia. Because of his acknowledged leadership in this field, he played an important role in the development of Richmond as a major medical center. Besides many monographs, he was author of a text book, "Diseases of the Esophagus", and contributed sections to "Diseases of the Digestive System", (Portis) and "The Chest and Heart", (Meyers).

Dr. Vinson was born in Davidson, North Carolina on January 24, 1890, and attended Davidson College where he received the degree of Bachelor of Arts in 1909, and a Master of Arts in 1910. In 1925, Davidson College awarded him the honorary degree of Doctor of Science. He received his Medical Degree from the University of Maryland Medical School. He then interned at Montreal General Hospital and at Trudeau Sanatorium.

He joined the Mayo Foundation in 1916, as one of the first Fellows in Medicine at that institution. In 1919, he was appointed to the staff of the Mayo Clinic as a Consultant in Medicine with special interest in diseases of the chest and esophagus. He joined with Dr. Henry S. Plummer in the development of endoscopic examinations of the air and food passages, and he made major contributions to this field of medicine during his stay at the Mayo Clinic. During his association with Dr. Plummer, a pattern of disease was described that has since been referred to as the Plummer-Vinson Syndrome. He developed a national and international reputation while on the staff of the Mayo Clinic and until the time of his death, patients were referred to him from all sections of this country for his advice and skill in diseases of the bronchus and esophagus.

He became a member of the faculty of the Medical College of Virginia in 1936, and was extremely active in the teaching program of that institution. He was especially gifted in the teaching of undergraduate and graduate students in his specialty, and with his enthusiasm, he became a most valuable member of the teaching staff of the Medical College of Virginia.

He was certified as a specialist in internal medicine in 1937 by the American Board of Internal Medicine. He was a Fellow of the American College of Physicians, the American Medical Association, the American Broncho-Esophagological Association. He also was a member of the Southern Medical Association and the American Association for Thoracic Surgery. He was a member of Phi Beta Kappa, the Society of Sigmi Xi, the Nu Sigma Nu and Beta Theta Pi Academic Fraternity. While he was in Rochester he served as president of the Rochester Kiwanis Club and in 1940, he was president of the Mayo Foundation Alumni Association.

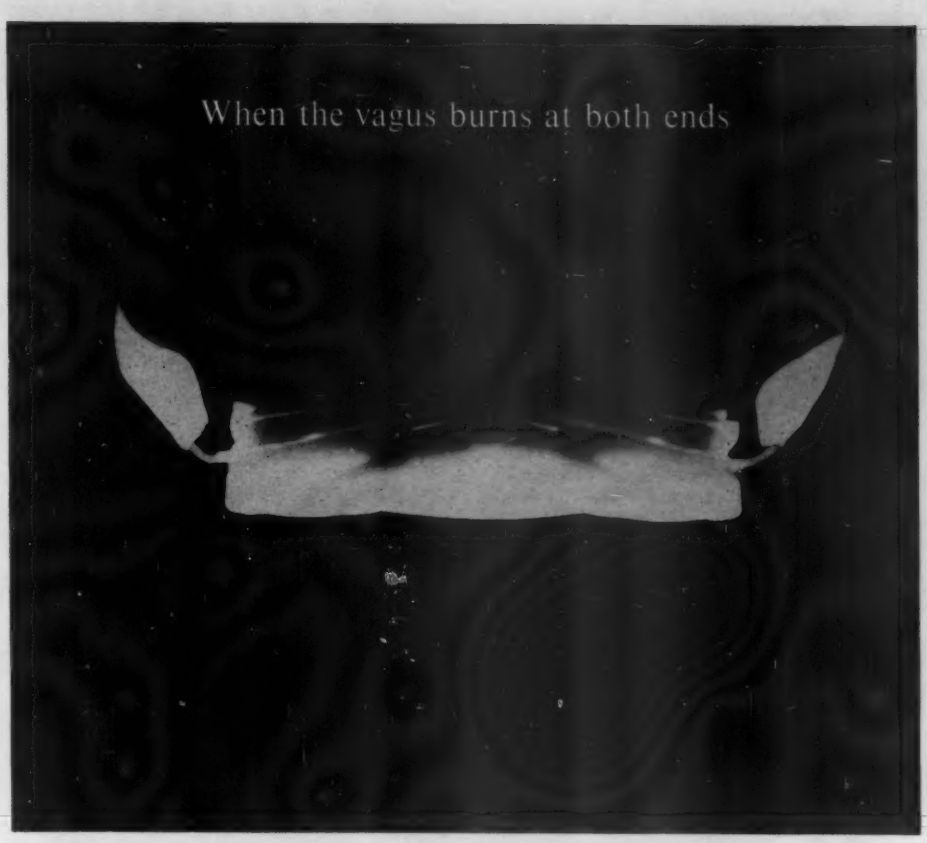
Perhaps his most outstanding professional characteristics, in addition to his obvious great technical skill in his chosen specialty, were a deep and genuine sincerity in everything he did, and complete and outstanding intellectual honesty in all his professional relationships with his fellow physicians and his patients. Another memorable characteristic of Dr. Vinson's was his willingness, and indeed eagerness, always to explain in great detail what he was trying to do to benefit the immediate medical problem.

Added to all this, was a really unique and highly developed sense of humor, as all his colleagues and patients will recall who have enjoyed many times his unusual skill as a raconteur.

In the death of Dr. Porter Vinson, the Richmond Academy of Medicine has lost a most valuable member, and the medical profession of this country has lost one of its most learned and skilled members. A physician of the stature of Dr. Vinson cannot be replaced. Those of us who knew and admire Dr. Vinson will always be grateful for the privilege of knowing and working with such a remarkable man.

This committee recommends that a copy of this memorial be spread upon the minutes of the Richmond Academy of Medicine, a copy sent to the Virginia Medical Monthly, and a copy sent to the bereaved family.

W. E. Pembleton, M.D., *Chairman*
Edward S. Ray, M.D.
John M. Meredith, M.D.



Pro-Banthīne® with Dartal® moderates both mood and gastrointestinal spasm

The slow simmer of anxiety frequently causes kindred gastrointestinal overactivity. The spasticity and the accompanying distress of excess acid lead to loss of efficiency. Patients subject to such psychoenteric upsets require therapy to calm both ends of the vagus.

Pro-Banthīne with Dartal contains two agents required for such dual therapy: Pro-Banthīne to control and curtail the flare-ups of spasm, excess acidity and excess motility, and Dartal to smother simmering anxiety and tension.

Pro-Banthīne with Dartal contains 15 mg. of Pro-Banthīne (brand of propantheline bromide) and 5 mg. of Dartal (brand of thiopropazate dihydrochloride) in each tablet.

Dosage: One tablet three times a day.

G. D. Searle & Co., Chicago 80, Illinois.
Research in the Service of Medicine.

Adequate Hospitalization for Treatment of Alcoholics

Doctors find the modern facilities and specialized care available at White Cross Hospital meet a vital need.

Affords Sympathetic Atmosphere, Encouraging Personal Attention, Specially Trained Staff

It is generally believed that alcoholism is self-imposed. Often in general hospitals the alcoholic patient is not considered to be "legitimately" sick, which results in the wrong psychological and emotional atmosphere that aggravates the condition. This is why more and more doctors with alcoholic cases where hospitalization is essential are utilizing the facilities at White Cross Hospital, devoted to the treatment of alcoholics exclusively. Here a sympathetic, comfortable and pleasant atmosphere—so essential to rehabilitation—is assured. The White Cross staff, trained in the special problems of the inebriate, is adequate to assure prompt attention at all hours. The White Cross Hospital is under the direction of a competent licensed physician, with five consulting physicians subject to call. Registered nurses and technicians are in charge 24 hours daily.

Safe, Effective White Cross Treatment

A private hospital offering scientific, institutional, medical, psychological, reflex, reduction and other methods for the rehabilitation of consent patients suffering from alcoholism. With the consent of the doctor and patient, the regular White Cross procedure is followed. At your request, your patient remains entirely under your supervision. You may come and go in White Cross Hospital at will, and will find the staff completely cooperative. Your recommendations will be followed to the letter.

All equipment modern with facilities to take care of 50 patients both male and female.

Salem, Va. Hospital

Approved and licensed by the Virginia State Hospital Board, Member American Hospital Association. Located atop beautiful Mt. Regis, in the quiet serene mountains of Virginia—conducive to rest, comfort and rehabilitation.

For information phone or write for booklet
Rates Reasonable

WHITE CROSS HOSPITAL

Five miles west of Roanoke on route No. 11
Salem, Virginia—Phone Salem 4761

Copyright 1955 H.N. Alford, Atlanta, Ga.

Appalachian Hall • Asheville, North Carolina

ESTABLISHED 1916

An Institution for the diagnosis and treatment of Psychiatric and Neurological illnesses, rest, convalescence, drug and alcohol habituation.

Insulin Coma, Electroshock and Psychotherapy are employed. The Institution is equipped with complete laboratory facilities including electroencephalography and X-ray.

Appalachian Hall is located in Asheville, North Carolina, a resort town, which justly claims an all around climate for health and comfort. There are ample facilities for clasification of patients, rooms single or en suite.

WM. RAY GRIFFIN, JR., M.D.
ROBERT A. GRIFFIN, JR., M.D.
MARK A. GRIFFIN, SR., M.D.
MARK A. GRIFFIN, JR., M.D.

For rates and further information write APPALACHIAN HALL, ASHEVILLE, N. C.

ST. ELIZABETH'S HOSPITAL

RICHMOND 20, VIRGINIA

ESTABLISHED 1912

GUY W. HORSLEY, M.D.
General Surgery and Gynecology

JAMES T. GIANOULIS, M.D.
General Surgery and Gynecology

J. SHELTON HORSLEY, III, M.D.
General Surgery and Gynecology

AUSTIN I. DODSON, JR., M.D.
Urology

J. EDWARD HILL, M.D.
Urology

DOUGLAS G. CHAPMAN, M.D.
Internal Medicine

ELMER S. ROBERTSON, M.D.
Internal Medicine

W. KYLE SMITH, JR., M.D.
Internal Medicine

For the care of surgical, gynecological, urological and medical cases.

EDWARD L. HARRIS, *Administrator*

Third Decade of Nursing

MRS. PLYLER'S NURSING HOME

KATE E. PLYLER (1876-1947) MARY INGRAM CLARK (1884-1955)

A private nursing home dedicated to the care of chronic, convalescent and aged

MRS. GENE CLARK REGIRER, Administrator

1615 Grove Avenue, Richmond, Virginia, Telephone EL 9-3221

ST. LUKE'S HOSPITAL

McGUIRE CLINIC

1000 West Grace Street
Richmond, Virginia

General Medicine
HUNTER H. McGUIRE, M.D.
MARGARET NOLTING, M.D.
JOHN P. LYNCH, M.D.
WM. H. HARRIS, JR., M.D.
JOHN B. CATLETT, M.D.
ROBERT W. BEDINGER, M.D.

Orthopedic Surgery
JAMES T. TUCKER, M.D.
BEVERLEY B. CLARY, M.D.
EARNEST B. CARPENTER, M.D.
JAMES B. DALTON, JR., M.D.

Neurology
RAYMOND A. ADAMS, M.D.

General Surgery
WEBSTER P. BARNES, M.D.
JOHN H. REED, JR., M.D.
JOHN ROBERT MASSIE, JR., M.D.
JOSEPH W. COXE III, M.D.

Dental Surgery
JOHN BELL WILLIAMS, D.D.S.

Urology
CHAS. M. NELSON, M.D.
AUSTIN I. DODSON, JR., M.D.

Pediatrics
HUBERT T. DOUGAN, M.D.

Treasurer: RICHARD J. JONES, BS., C.P.A.

Obstetrics
W. HUGHES EVANS, M.D.
W. H. COX, M.D.

Bronchoscopy
GEORGE AUSTIN WELCHONS, M.D.

Roentgenology
JESSE N. CLORE, JR., M.D.
STUART J. EISENBERG, M.D.

Pathology
J. H. SCHERER, M.D.
JOHN L. THORNTON, M.D.

Anesthesiology
HETH OWEN, JR., M.D.
WILLIAM B. MONCURE, M.D.
BEVERLY JONES, M.D.

ALL ROOMS AIR CONDITIONED
Free Parking for Patrons

• *"Understanding Care"* •

℞ Skilled Nursing Care for Your Elderly and Chronic Patients

Air View Showing Park-like Grounds of Terrace Hill Nursing Home

AGED • CHRONICALLY ILL • INVALIDS • CONVALESCENTS

Health Approved — *Each Guest Under Care of His Own Doctor.* — *Inspection Invited*

24 hours daily care in a specifically built 52 Bed Nursing Home. Registered, graduate nurse, and Res. M.C.V. Extern supervision. Trained Dietitian and orderly.

TELEPHONE
MI 3-2777

Private and Semi-Private Rooms with baths. Rates from $55 to $75 weekly for Bed, Board and General Nursing. 9 minutes from any Local Hospital.

Write or Phone **Bernard Maslan, Adm.**

TERRACE HILL NURSING HOME INC.

2112 Monteiro Ave. Richmond 22, Va.

• Kidde ATMO Fire Detection System Equipped •

MEDICINE IN VIRGINIA

17th, 18th and 19th Centuries

Reduced Price to Members of
The Medical Society of Virginia

3 Volumes for $5.75

Order Through

THE MEDICAL SOCIETY OF VIRGINIA
4205 Dover Road **Richmond 21, Va.**

The State Board of Medical Examiners of Virginia

The next meeting of the Virginia Board of Medical Examiners will be held at the Richmond Hotel, Richmond, Virginia, December 1, 1959. The examinations will be held at the Hotel, December 2-4, inclusive. All applications and other documents pertaining to the examinations or to matters to be discussed by the Board must be on file in the Secretary's office on or before November 10, 1959. The Secretary of the Board is Dr. K. D. Graves, 631 First Street, S. W., Roanoke, Virginia.

JOHNSTON-WILLIS HOSPITAL

RICHMOND, VIRGINIA

A MODERN GENERAL HOSPITAL
PRIVATELY MANAGED
SITUATED IN THE QUIET OF THE
WEST END RESIDENTIAL SECTION

RICHMOND EYE HOSPITAL
RICHMOND EAR, NOSE AND THROAT HOSPITAL
(COMBINED)

RICHMOND, VIRGINIA

A new non-profit Community Hospital specially constructed for the treatment of Eye, Ear, Nose and Throat Diseases, including Laryngeal Surgery, Bronchoscopy and Plastic Surgery of the Nose.

Professional care offered a limited number of charity patients.

ADDRESS: **JULIA WAGNER WATERS, R.N., *Administrator*** **408 North 12th Street**

RIVERSIDE CONVALESCENT HOME

Sophia & Fauquier Sts. **Fredericksburg, Virginia**

For convalescent, aged, chronically ill, and retired persons. Provides healthful rest, excellent nursing care in cheerful, comfortable surroundings. Air-conditioned, fire-safe building. Accommodations for eighty-four. Medical Supervision. Inspection Invited. Write, or telephone Essex 3-3434.

Rates:

$40.00 to $75.00 per week

STUART CIRCLE HOSPITAL

413-21 Stuart Circle
RICHMOND, VIRGINIA

Medicine:
Manfred Call, III, M.D.
M. Morris Pinckney, M.D.
Alexander G. Brown, III, M.D.
John D. Call, M.D.
Wyndham B. Blanton, Jr., M.D.
Frank M. Blanton, M.D.
John W. Powell, M.D.

Obstetrics and Gynecology:
Wm. Durwood Suggs, M.D.
Spotswood Robins, M.D.
David C. Forrest, M.D.

Orthopedics:
Beverley B. Clary, M.D.
James B. Dalton, Jr., M.D.

Pediatrics:
Charles P. Mangum, M.D.
Edward G. Davis, Jr., M.D.

Ophthalmology, Otolaryngology:
W. L. Mason, M.D.

Anesthesiology:
William B. Moncure, M.D.
Heth Owen, Jr., M.D.

Surgery:
A. Stephens Graham, M.D.
Charles R. Robins, Jr., M.D.
Carrington Williams, M.D.
Richard A. Michaux, M.D.
Carrington Williams, Jr., M.D.
Armistead M. Williams, M.D.

Urological Surgery:
Frank Pole, M.D.

Oral Surgery:
Guy R. Harrison, D.D.S.

Plastic Surgery:
Hunter S. Jackson, M.D.

Roentgenology and Radiology:
Fred M. Hodges, M.D.
L. O. Snead, M.D.
Hunter B. Frischkorn, Jr., M.D.
William C. Barr, M.D.

Pathology:
James B. Roberts, M.D.

Physiotherapy:
Miss Etheleen Dalton

Director:
Charles C. Hough

Gill Memorial Eye, Ear and Throat Hospital, Inc.

Roanoke, Virginia

STAFF

Dr. Elbyrne G. Gill
Dr. Houston L. Bell
Dr. Ronald B. Harris
Dr. Derwin K. Harmon

RESIDENT STAFF

Dr. J. R. Van Arsdall
Dr. C. B. Foster
Dr. D. H. Williams
Dr. Scott W. Little

Jean Swartz, M.S.
(Biochemist)

Bobbie Boyd Lubker, M.A.
(Speech Therapist)

A Modern Fireproof Hospital, Specially Designed and Equipped for the Medical and Surgical Care of Ophthalmology, Otolaryngology, Facio-Maxillary Surgery, Rhinoplastic Surgery, Bronchoscopy and Esophagoscopy.

Complete Laboratory and X-Ray Equipment.
Physicians and Graduate Nurses in Constant Attendance.

The Hospital offers a three year residency in Ophthalmology and a three year residency in Otolaryngology to a graduate of an approved medical school, who has an internship of at least one year in an approved school.

For further information, address:

BUSINESS MANAGER, BOX 1789, ROANOKE, VIRGINIA

TUCKER HOSPITAL Inc.

212 West Franklin Street

Richmond, Virginia

A private hospital for diagnosis and treatment of psychiatric and neurological patients. Hospital and out-patient services.

(Organic diseases of the nervous system, psychoneuroses, psychosomatic disorders, mood disturbances, social adjustment problems, involutional reactions and selective psychotic and alcoholic problems.)

DR. JAMES ASA SHIELD
DR. GEORGE S. FULTZ
DR. WEIR M. TUCKER
DR. AMELIA G. WOOD

SAINT ALBANS

PSYCHIATRIC HOSPITAL

Radford, Virginia

STAFF

James P. King, M.D., Director

Daniel D. Chiles, M.D.
Clinical Director
James K. Morrow, M.D.
Clara K. Dickinson, M.D.

Clinical Psychology:
Thomas C. Camp, Ph.D.
Artie L. Sturgeon, Ph.D.

William D. Keck, M.D.
J. William Giesen, M.D.
Internist (Consultant)
Edward W. Gamble, III, M.D.

Don Phillips
Administrator

AFFILIATED CLINICS

Bluefield Mental Health Center
525 Bland St., Bluefield, W. Va.
David M. Wayne, M.D.

Beckley Mental Health Center
207½ McCreery St., Beckley, W. Va.
W. E. Wilkinson, M.D.

Whenever the diet is faulty, the appetite poor, or the loss of food is excessive

through vomiting or diarrhea—

Valentine's MEAT EXTRACT

stimulates the appetite,

increases the flow of digestive juices,

provides: supplementary amounts of vitamins, minerals and soluble proteins,

extra-dietary vitamin B_{12},

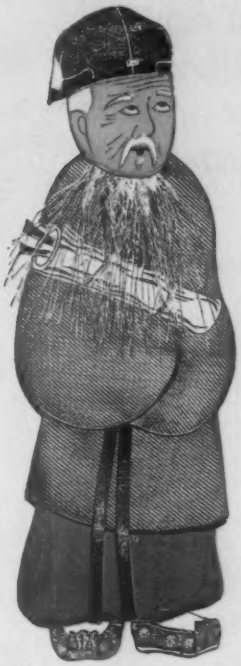
protective quantities of potassium, in a palatable and readily assimilated form.

Supplied in bottles of 2 or 6 fluidounces.

DOSAGE *is 1 teaspoonful two or three times daily; two or three times this amount for potassium therapy.*

VALENTINE Company, Inc.
RICHMOND 21, VIRGINIA

immortals of chinese mythology:



Chang Kuo-lao

This itinerant sage impressed the court of the Emperor by growing a new set of teeth

...this potent corticosteroid has impressed the medical profession with its repeated success in countless steroid-responsive indications

METICORTEN

METICORTEN,® brand of prednisone, 5 mg. tablets.

SCHERING CORPORATION • BLOOMFIELD, NEW JERSEY

You will soon receive in your mail a full-color, handmade, three-dimensional figure of this Chinese Immortal, mounted and suitable for framing.

5-559

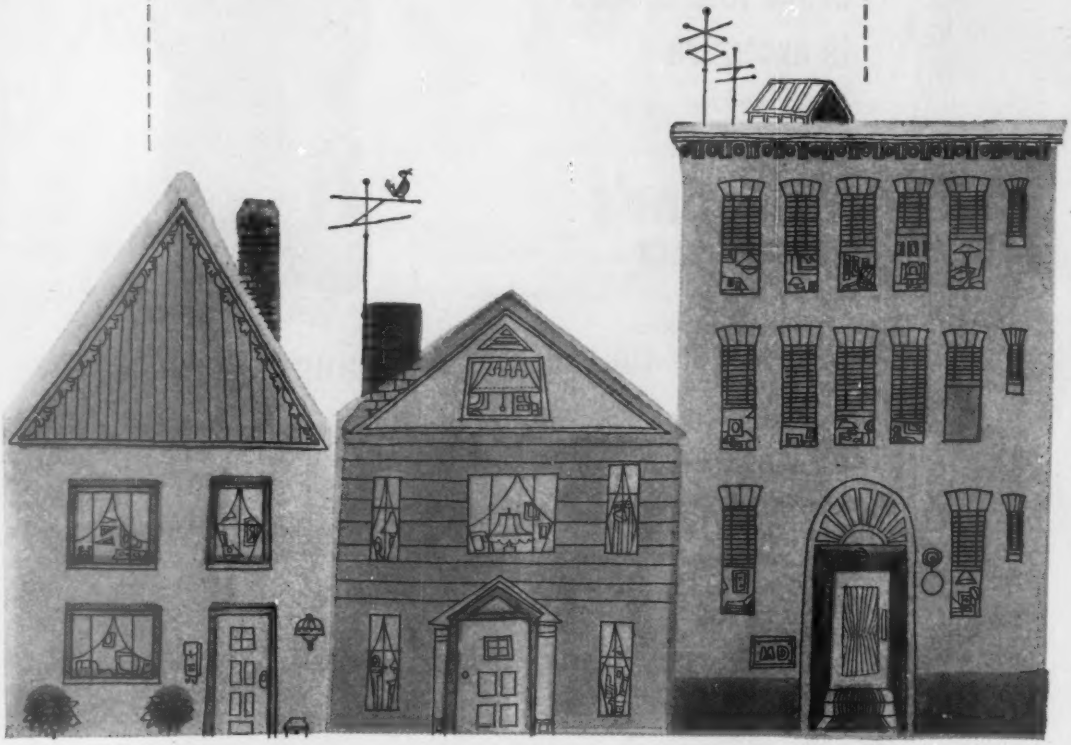
Schering

"But, Doctor, I just can't swallow a lot of tablets"

"Little mother, just **ONE**

BONADOXIN®

tablet stops morning sickness (you take it at bedtime)"



The formula tells why BONADOXIN quickly stops nausea and vomiting of pregnancy in 9 out of 10 cases.* Each tiny BONADOXIN tablet contains: Meclizine HCl (25 mg.) for antinauseant action / Pyridoxine HCl (50 mg.) for metabolic replacement

More than 60,000,000 tablets prescribed and taken. Toxicity low, tolerance excellent. In bottles of 25 and 100. Usual dose: one tablet at bedtime; severe cases may require another on arising. See PDR, p. 779.

BONADOXIN also effectively relieves nausea and vomiting associated with: anesthesia, radiation sickness, Meniere's syndrome, labyrinthitis, cerebral arteriosclerosis and motion sickness.

After Baby Comes

For infant colic, try antispasmodic BONADOXIN Drops... stop colic in 7 out of 8 cases.*

Each cc. contains:
Meclizine 8.33 mg. / Pyridoxine 16.67 mg.

See PDR, p. 779.

*Bibliography available on request.

ROERIC Rx *New York 17, New York • Division, Chas. Pfizer & Co., Inc. • Science for the World's Well-Being*

NIAMID*

reduces pain in angina pectoris

NIAMID, in intensive clinical tests, has proved to have a high degree of safety and to be a valuable adjunct in the management of the anginal syndrome. NIAMID produces striking symptomatic improvement in angina patients...

- reduces frequency of anginal episodes
- diminishes severity of attacks
- decreases nitroglycerin requirements
- renews sense of well-being

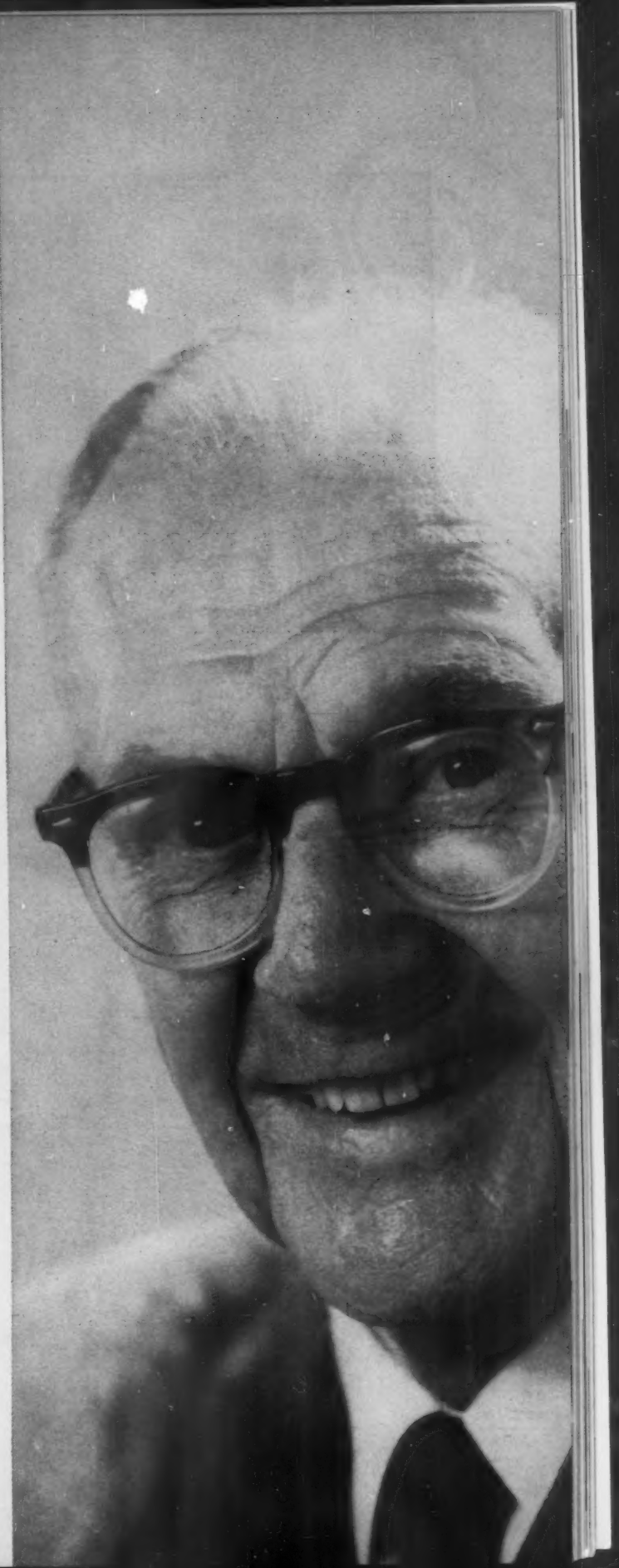
Note: Because of dramatic relief of symptoms and increased sense of well-being in anginal cases, it is advisable to caution the patient against overexertion.

DOSAGE: Start with 75 mg. of NIAMID daily in single or divided doses. After 2 weeks or more, adjust the dosage, depending upon patient response, in steps of one or one-half 25 mg. tablet. Once improvement is seen, gradually reduce dosage to the maintenance level. Many patients respond to NIAMID within a few days, others within 7 to 14 days. NIAMID is available as 25 mg. (pink) and 100 mg. (orange) scored tablets.

A Professional Information Booklet giving detailed information on NIAMID *is available on request from the Medical Department, Pfizer Laboratories, Division, Chas. Pfizer & Co., Inc., Brooklyn 6, N. Y.*

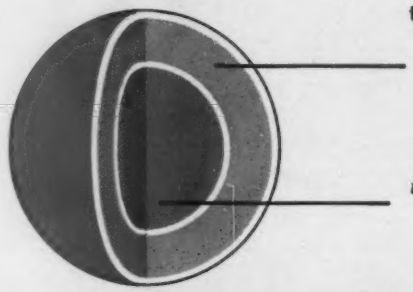
*Trademark for nialamide

Pfizer *Science for the world's well-being™*



the complaint: "nervous indigestion"

the diagnosis: any one of several nonspecific gastrointestinal disorders requiring relief of symptoms by sedative-antispasmodic action with concomitant digestive enzyme therapy. **the prescription:** a new formulation, incorporating in a single tablet the actions of Donnatal and Entozyme. **the dosage:** two tablets three times a day, or as indicated.



the formula: *in the gastric-soluble outer layer:*

Hyoscyamine sulfate	0.0518 mg.
Atropine sulfate	0.0097 mg.
Hyoscine hydrobromide	0.0033 mg.
Phenobarbital (⅛ gr.)	8.1 mg.
Pepsin, N.F.	150 mg.

in the enteric-coated core:

Pancreatin, N.F.	300 mg.
Bile salts	150 mg.

DONNAZYME™

Robins

A. H. ROBINS COMPANY, INCORPORATED • RICHMOND 20, VIRGINIA

NEW ONE-DOSE TREATMENT FOR PINWORMS

Povan*

SUSPENSION

(PYRVINIUM PAMOATE SUSPENSION, PARKE-DAVIS)

A new agent, POVAN SUSPENSION is singularly effective against pinworms...greatly improves and simplifies therapy.

- single-dose effectiveness in pinworm infections[1]
- pleasant-tasting and well tolerated
- easy to administer and economical
- practical against the spread of oxyuriasis...a single dose to each member of a household or institution where pinworms are present[1]

Administration and Dosage

POVAN SUSPENSION is administered orally in a single dose. In small children, the dose is equivalent to 5 mg. pyrvinium base per Kg. of body weight.

For convenience, a 5-cc. teaspoonful per 22 pounds (10 Kg.) of body weight may be recommended. For example, a 54-pound child would receive somewhat less than 3 teaspoonfuls of the Suspension.

Adults also may be given POVAN SUSPENSION according to the same dosage schedule.

Note: Parents and patients should be informed that POVAN SUSPENSION will color the stools a bright red and that, if spilled, will stain.

Supplied: POVAN SUSPENSION is available as a pleasant-tasting, strawberry-flavored suspension containing the equivalent of 10 mg. pyrvinium base per cc., in 2-oz. bottles.

(1) Beck, J. W.; Saavedra, D.; Antell, G. J., & Tejeiro, B.: Am. J. Trop. Med. 8:349, 1959.

*TRADE-MARK

MEDICAMENTA VERA

PARKE, DAVIS & COMPANY
DETROIT 32, MICHIGAN

05457

Always in Good Taste!

Generations of skill in the art of whisky making are reflected in the good taste of Johnnie Walker Scotch. Why not try some soon?

BORN 1820
... still going strong

JOHNNIE WALKER
SCOTCH WHISKY

For the
Discriminating
Eye Physician

Depend on the Services of a Guild Optician

in
Lynchburg, Virginia

A. G. JEFFERSON

Ground Floor **Allied Arts Bldg.**

Exclusively Optical

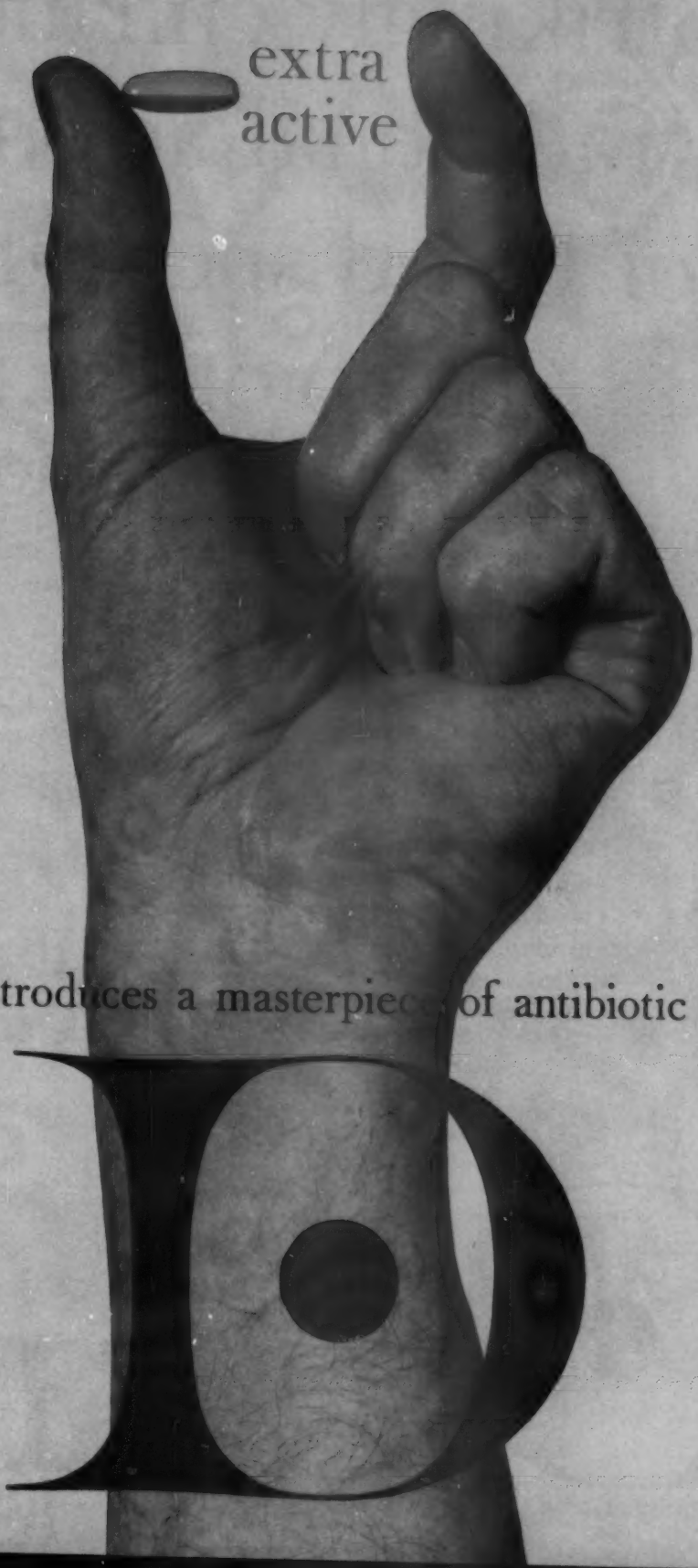
The American Way

is peace, prosperity, and goodwill toward our fellow man—to invest our time in educating and learning; and our money in good citizens and fine institutions.

One of the finest institutions of your State is Richmond Hotels Incorporated, one that maintains the highest modern hotel standards . . . one that combines the hospitality and charm of the old and the convenience and comfort of the new.

John Marshall William Byrd
King Carter Richmond

Richmond Hotels Incorporated



Lederle introduces a masterpiece of antibiotic design

Strikingly enhances the traditional advantages of broad-spectrum antibiotics...

for greater patient-physician benefit

DECLOMYCIN is a unique fermentation product of a strain of *Streptomyces aureofaciens*—the parent organism of AUREOMYCIN®* and ACHROMYCIN.®†

DECLOMYCIN singularly achieves:

- far greater antibiotic activity with far less drug
- greater stability in body media
- unrelenting peak activity throughout therapy
- "extra-day" protection through sustained activity

DECLOMYCIN retains:

- unsurpassed broad-spectrum range of activity
- rapid activity
- excellent toleration
- effectiveness against infection in nearly all organs or systems—rapid diffusion in body tissues and fluids

*Chlortetracycline Lederle †Tetracycline Lederle

DECLO

Demethylchlortetracycline Lederle

Far greater antibiotic activity with far less antibiotic

Milligram for Milligram, DECLOMYCIN exhibits 2 to 4 times the clinical potency (inhibitory action) of tetracycline against susceptible organisms. Thus, DECLOMYCIN has the advantage of providing significantly higher serum *activity* levels with significantly reduced drug intake.*[1,2,3]

Actually, DECLOMYCIN demonstrates the highest ratio of prolonged activity level to daily milligram intake of any known broad-spectrum antibiotic. Reduction of milligram intake of drug reduces hazards of related physical effect on intestinal mucosa or interaction with gastrointestinal contents.

*Activity level is a far more meaningful basis of comparison than quantitative blood levels, as Hirsch and Finland note. Action upon pathogens is the ultimate value.[1]

MYCIN

Unrelenting peak antimicrobial attack throughout therapy

The high level of DECLOMYCIN activity is uniquely sustained. It is not just an initial phenomenon but is constant—maintained on each day of treatment and between doses—without noticeable diminution of intensity. Peak-and-valley control is eliminated, favoring continuous suppression of pathogens and consequent improvement.

This DECLOMYCIN constant is achieved through remarkably greater stability in body fluids,[2,4,6] resistance to degradation[6] and a low rate of renal clearance[4,5]—all supporting antibiotic activity for extended periods.

DECLO

Demethylchlortetracycline Lederle

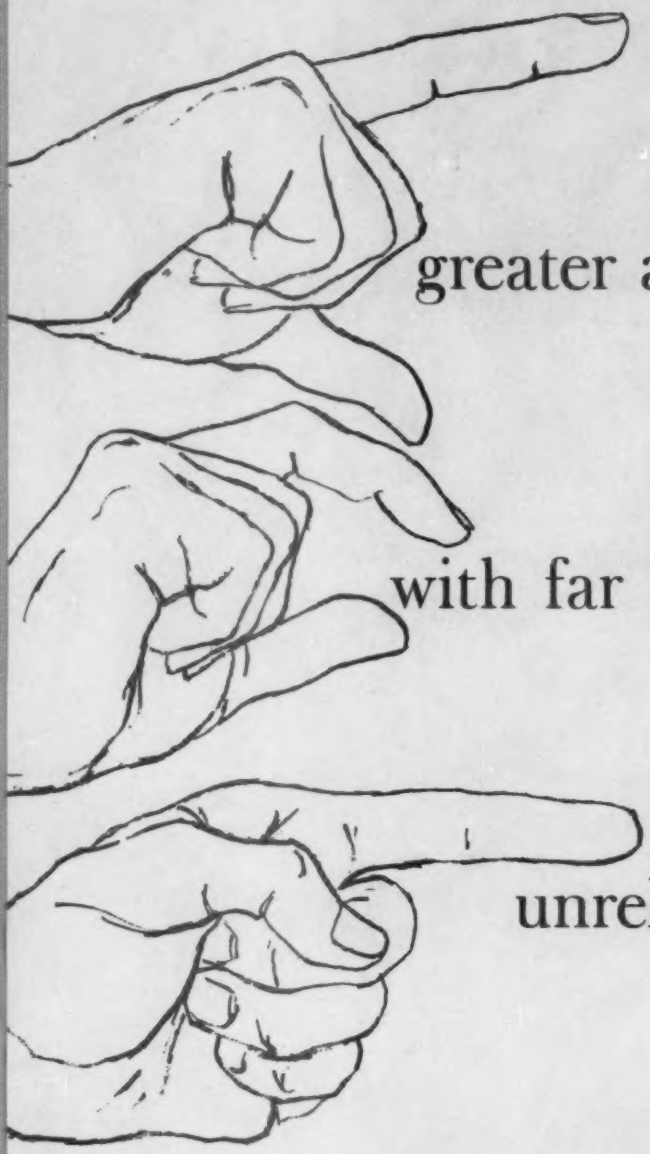
"Extra-day" activity for security against relapse

DECLOMYCIN maintains significant antibacterial activity for one to two days after discontinuance of dosage[1]—a major distinction from other antibiotics. Previous drugs have declined abruptly in activity following withdrawal.

DECLOMYCIN thus gives the patient an unusual degree of protection against resurgence of the primary infection, and against secondary infection... sequelae not infrequently encountered and often resembling a "resistance problem." Consequently, reinstitution of therapy or a change in therapy should rarely be necessary.

MYCIN

A masterpiece of a



greater antibiotic activity

with far less antibiotic intake

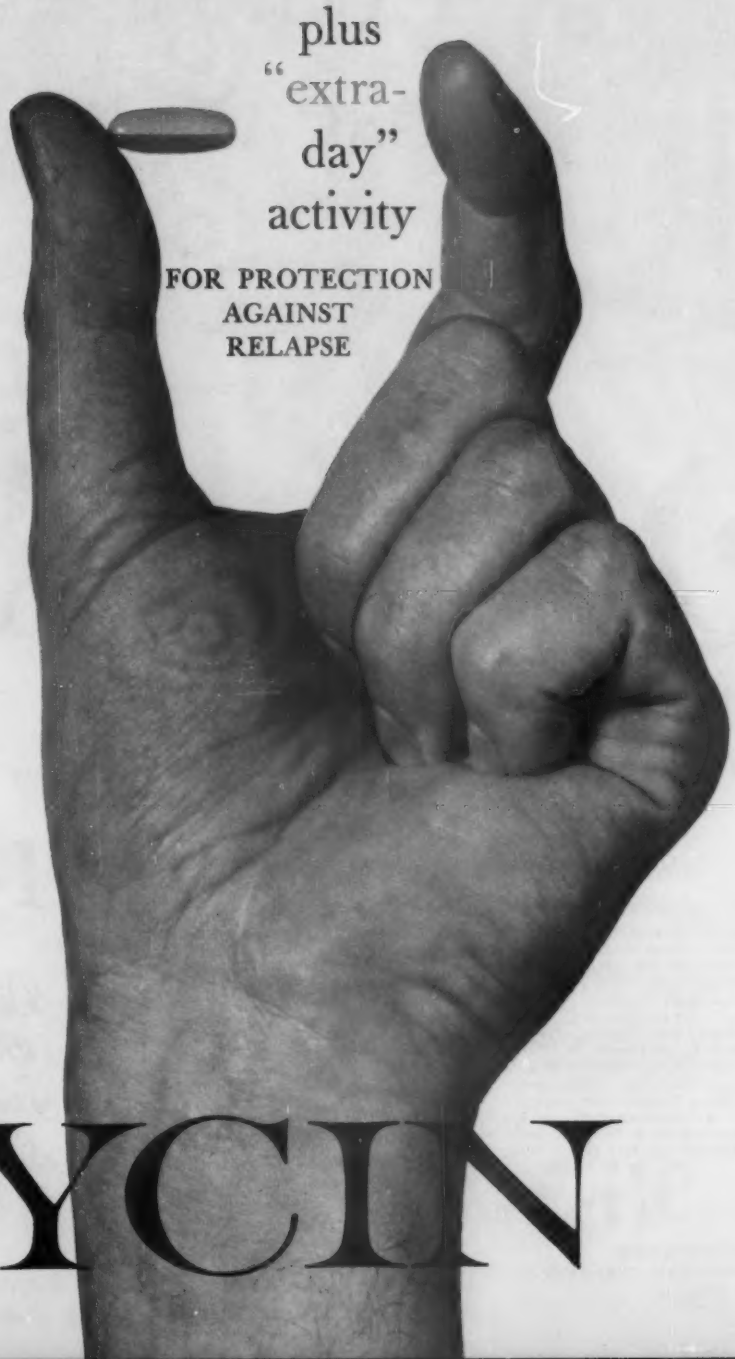
unrelenting peak attack

—enhancing the unsurpassed features of tetracycline... for greater physician-patient benefits.

DECLO

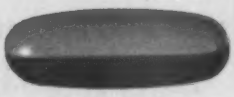
Demethylchlortetracycline Lederle

antibiotic design



MYCIN

A major contribution of Lederle research



in the distinctive dry-filled duotone capsule

DECLOMYCIN®

Demethylchlortetracycline Lederle

available as:

DECLOMYCIN Capsules, 150 mg.
Adult dosage: 1 capsule four times daily.
Pediatric Drops, 60 mg. per cc.
Bottles of 10 cc. with dropper.
Oral Suspension, 75 mg. per 5 cc. tsp.

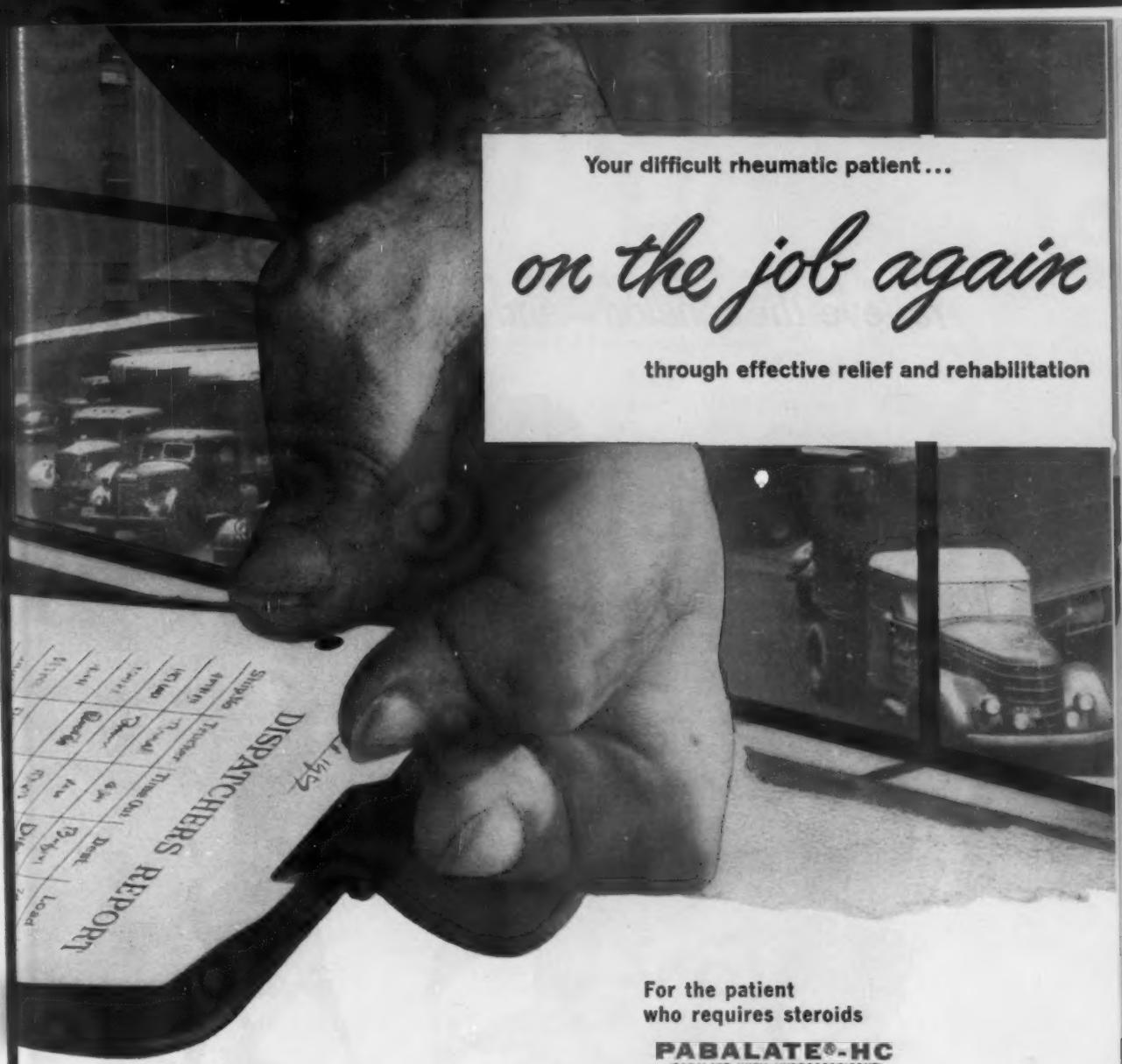
1. Hirsch, H. A., and Finland, M.: Antibacterial Activity Of Serum Of Normal Subjects After Oral Doses of Demethylchlortetracycline, Chlortetracycline and Oxytetracycline. *New England J. Med.* 260:1099 (May 28) 1959. 2. Hirsch, H. A., Kunin, C. M., and Finland, M.: Demethylchlortetracycline – A New And More Stable Tetracycline Antibiotic That Yields Greater and More Sustained Antibacterial Activity. To be published. 3. Lichter, E. A., and Sobel, S.: The Distribution Of Oral Demethylchlortetracycline In Healthy Volunteers And In Patients Under Treatment For Various Infections. To be published. 4. Kunin, C. M., Dornbush, A. C. and Finland, M.: Distribution And Excretion Of Four Tetracycline Analogues In Normal Young Men. To be published. 5. Kunin, C. M., and Finland, M.: Demethylchlortetracycline: New Tetracycline Antibiotic That Yields Greater and More Sustained Antibacterial Capacity. *New England J. Med.* 259:999 (Nov. 28) 1958. 6. Sweeney, W. M.; Hardy, S. M.; Dornbush, A. C., and Ruegsegger, J. M.: Demethylchlortetracycline: A Clinical Comparison of A New Antibiotic with Chlortetracycline and Tetracycline. *Antibiotics & Chemotherapy* 9:13 (Jan.) 1959.

Rx

Declomycin Caps
150 mg.
Disp # XVI
Sig 1 cap q.i.d.

LEDERLE LABORATORIES,
a Division of AMERICAN CYANAMID COMPANY
Pearl River, New York

Lederle



Your difficult rheumatic patient...

on the job again

through effective relief and rehabilitation

For the patient who does not require steroids

PABALATE®

Reciprocally acting nonsteroid antirheumatics . . . more effective than salicylate alone.

In each enteric-coated tablet:

Sodium salicylate U.S.P.....0.3 Gm. (5 gr.)
Sodium para-aminobenzoate .....0.3 Gm. (5 gr.)
Ascorbic acid .....50.0 mg.

or for the patient who should avoid sodium

PABALATE®-Sodium Free

Pabalate, with sodium salts replaced by potassium salts.

In each enteric-coated tablet:

Potassium salicylate .....0.3 Gm. (5 gr.)
Potassium para-aminobenzoate .....0.3 Gm. (5 gr.)
Ascorbic acid .....50.0 mg.

For the patient who requires steroids

PABALATE®-HC

(PABALATE WITH HYDROCORTISONE)

Comprehensive synergistic combination of steroid and nonsteroid antirheumatics... full hormone effects on low hormone dosage... satisfactory remission of rheumatic symptoms in 85% of patients tested.

In each enteric-coated tablet:

Hydrocortisone (alcohol) ..... 2.5 mg.
Potassium salicylate ..... 0.3 Gm.
Potassium para-aminobenzoate.. 0.3 Gm.
Ascorbic acid .....50.0 mg.

PABALATE® Robins PABALATE®-HC

For steroid or non-steroid therapy: SAFE DEPENDABLE ECONOMICAL

A. H. ROBINS CO., INC., RICHMOND 20, VIRGINIA • Ethical Pharmaceuticals of Merit since 1878

relieve the tension—and control its G.I. sequelae

...Pathibamate®

meprobamate with PATHILON® tridihexethyl chloride Lederle

for relieving tension and curbing hypermotility and excessive secretion in G. I. disorders

PATHIBAMATE combines two highly effective and well-tolerated therapeutic agents:

meprobamate (400 mg. or 200 mg.)—a tranquilizer and muscle-relaxant widely accepted for the effective management of tension and anxiety

PATHILON (25 mg.)—an anticholinergic long noted for producing prompt symptomatic relief through peripheral, atropine-like action, yet with few side effects

now available...

PATHIBAMATE-200 Tablets

200 mg. meprobamate • 25 mg. PATHILON

for more flexible control of G. I. trauma and tension smooth, sugar-coated, easy-to-swallow

PATHIBAMATE-400 and PATHIBAMATE-200 are indicated for duodenal ulcer; gastric ulcer; intestinal colic; spastic and irritable colon; ileitis; esophageal spasm; anxiety neurosis with gastrointestinal symptoms and gastric hypermotility.

Supplied: PATHIBAMATE-400—Each tablet (yellow, 1/2-scored) contains meprobamate, 400 mg.; PATHILON tridihexethyl chloride 25 mg.

PATHIBAMATE-200—Each tablet (yellow, coated) contains meprobamate, 200 mg.; PATHILON tridihexethyl chloride, 25 mg.

Administration and Dosage: PATHIBAMATE-400—1 tablet three times a day at mealtime and 2 tablets at bedtime.

PATHIBAMATE-200—1 or 2 tablets three times a day at mealtime and 2 tablets at bedtime.

Adjust dosage to patient response.

Contraindications: glaucoma; pyloric obstruction, and obstruction of the urinary bladder neck.

Lederle LEDERLE LABORATORIES, A Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

JUST ONE TABLET DAILY

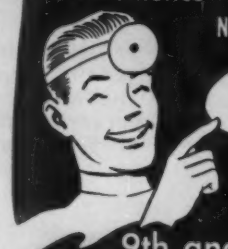
provides therapeutic levels . . . for 24 hours . . .
with low incidence of sensitivity reactions . . .
WHENEVER SULFAS ARE INDICATED

KYNEX

Sulfamethoxypyridazine Lederle
0.5 Gm. TABLETS/NEW ACETYL PEDIATRIC SUSPENSION
LEDERLE LABORATORIES, a Division of
AMERICAN CYANAMID COMPANY, Pearl River, New York

YES, DOCTOR, in Richmond it's the Hotel Raleigh

RICHMOND'S MOST MODERN HOTEL
Completely Air Conditioned
Convenience • Comfort • Fine Food
Near MCV and All Downtown!



Shhh . . . it's Quiet
No Conventions!

Call Reservation Clerk
Collect: MI 3-2013
9th and Bank Streets

Member:
DINER'S CLUB • AMERICAN EXPRESS

ST. PAUL FIRE and MARINE • ST. PAUL MERCURY • WESTERN LIFE •
The St. Paul Western Insurance Companies
FOUNDED 1853

for your complete insurance needs . . .

☆ PROFESSIONAL
☆ PERSONAL
☆ PROPERTY

CHOICE OF THE MEDICAL SOCIETY OF VIRGINIA FOR PROFESSIONAL LIABILITY INSURANCE

THERE IS A SAINT PAUL AGENT IN YOUR COMMUNITY AS CLOSE AS YOUR PHONE

Virginia Head Office
721 American Building
Richmond 4, Virginia
Phone MI 3-0340

HOME OFFICE: 111 WEST FIFTH ST., ST. PAUL, MINN.

COUGH ***promptly curbed*** by homarylamine—non-narcotic antitussive with the approximate potency of codeine.

INFECTION ***combated*** by three nonsystemic antibiotics—each active against common mouth and throat pathogens, all with relatively low sensitization potentials.

IRRITATION ***soothed*** by benzocaine—a topical anesthetic that promotes prolonged relief of inflamed or irritated tissues.

PENTAZETS® troches

Homarylamine · Bacitracin · Tyrothricin · Neomycin · Benzocaine

NEW PINEAPPLE FLAVOR Overwhelmingly selected by a taste panel.

Available to your patients on your prescription only.

DOSAGE: Three to five troches daily for three to five days.

SUPPLIED: Vials of 12.

MSD **MERCK SHARP & DOHME** DIVISION OF MERCK & CO., INC., PHILADELPHIA 1, PA.

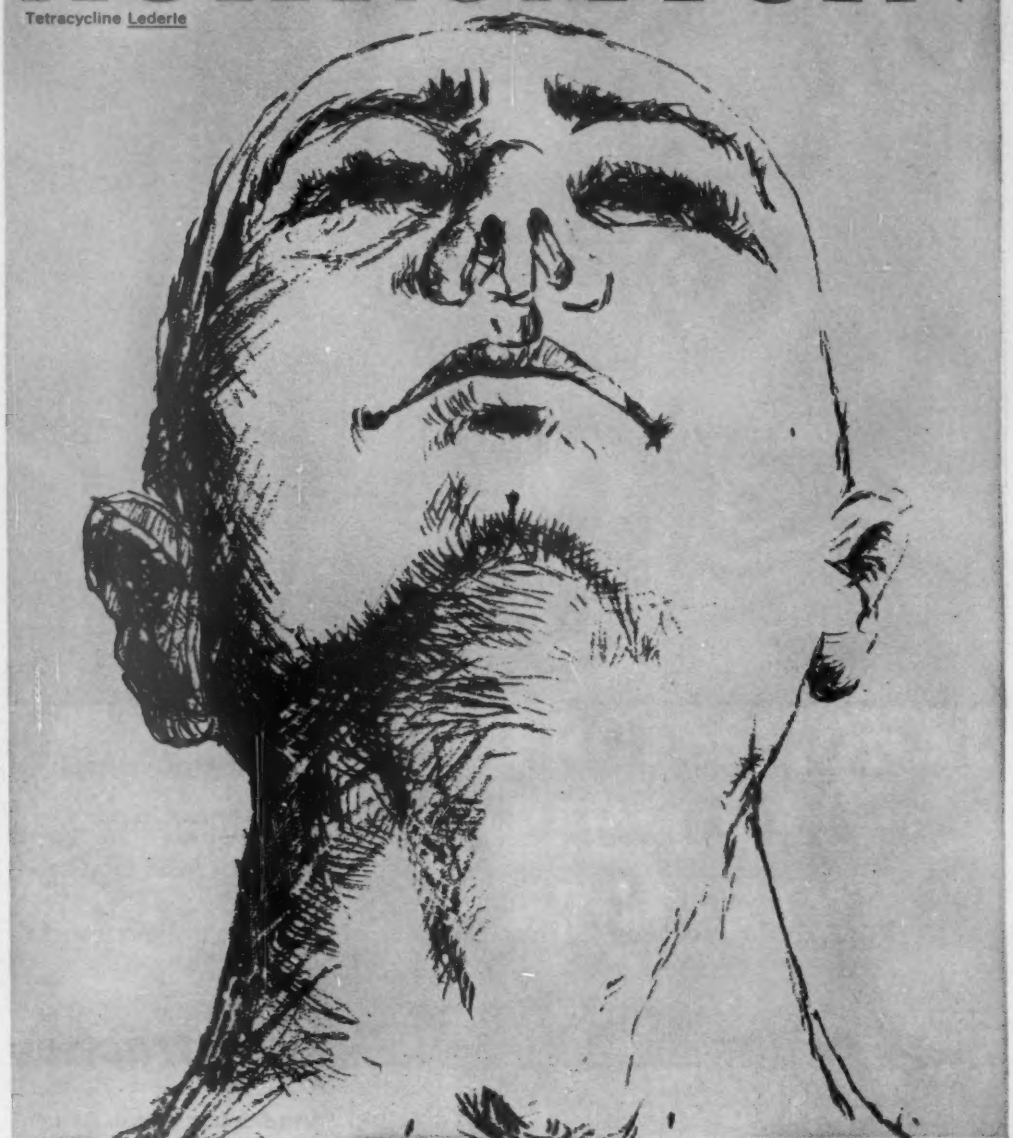
PENTAZETS is a trademark of Merck & Co., Inc.

internal and/or external attack

Whatever the bacterial infection seen in EENT, the foci respond rapidly to a suitable form of broad-spectrum ACHROMYCIN. In superficial cases, local therapy is often dramatic. In deep-seated conditions, ACHROMYCIN V capsules complement topical control for fast relief and remission.

ACHROMYCIN®

Tetracycline Lederle



e Ophthalmic Oil Suspension 1%
Ophthalmic Ointment 1%
Ophthalmic Ointment 1% with Hydrocortisone 1.5%
Ophthalmic Powder Sterilized

e Ear Solution

n Nasal Suspension with Hydrocortisone And Phenylephrine

t PHARYNGETS® Troches
Troches

ACHROMYCIN V (Tetracycline with Citric Acid) Capsules

LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

Complete local claim service

that's prompt, efficient, satisfactory.

Don't forget that your local American Health Agent . . . by *specializing* in your patient's HOSPITAL, MEDICAL and SURGICAL insurance problems—offers extra services of *special* value to *you* . . .

He's a specialist—a career man in his chosen field. He has earned a good reputation *locally*, with efficient service and prompt attention to claims.

Moreover, he appreciates the impact that health insurance can have on the practice of medicine, and wants to co-operate with the local medical profession.

AMERICAN HEALTH
INSURANCE CORPORATION

300 St. Paul Place, Baltimore 2, Maryland

It makes sense to expect special results from a specialist in the field of health insurance.

immortals of chinese mythology:

Lu Tung-pin

This scholarly but fierce mystic earned his place in the Taoist pantheon by slaying dragons with a magic sword

...this experience-tested steroid has earned its place in twentieth-century medicine by its unsurpassed results in acute and chronic steroid-responsive disorders

METICORTEN

METICORTEN,® brand of prednisone, 5 mg. tablets.

SCHERING CORPORATION • BLOOMFIELD, NEW JERSEY

You will soon receive in your mail a full-color, handmade, three-dimensional figure of this Chinese Immortal, mounted and suitable for framing.

8-911

Schering

Digitalis

in its completeness

Each pill is equivalent to one USP Digitalis Unit

Physiologically Standardized therefore always dependable.

Clinical samples sent to physicians upon request.

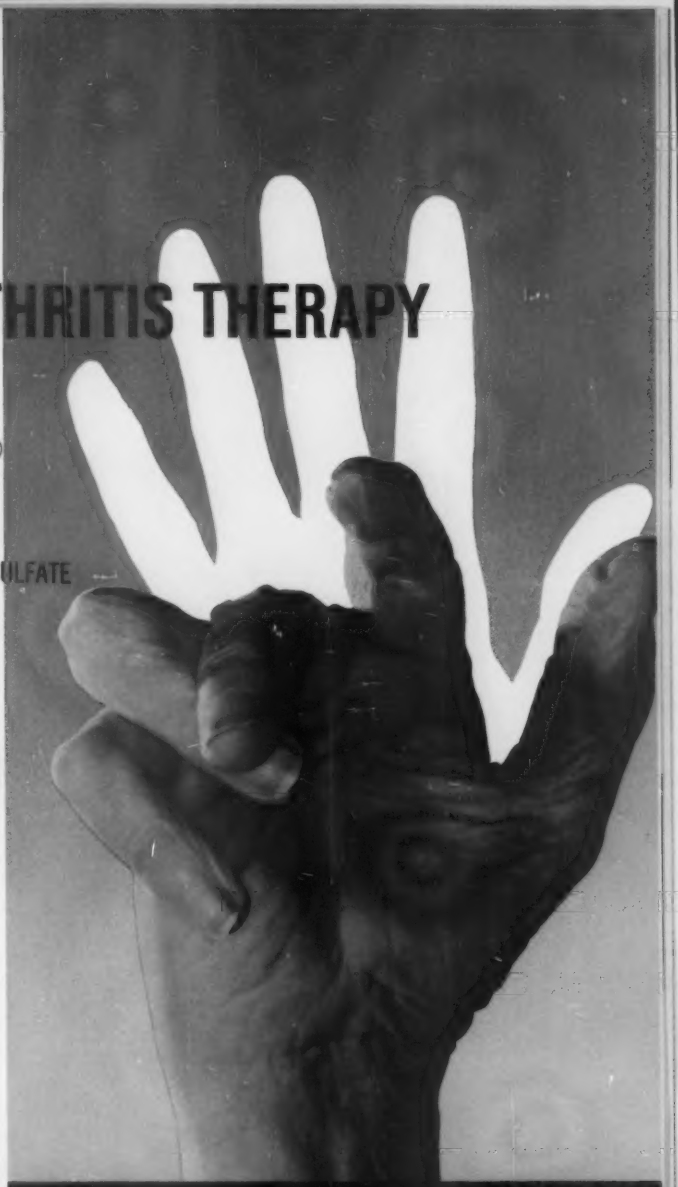
Davies, Rose & Co., Ltd.
Boston, 18, Mass.

MAINSTAY

OF RHEUMATOID ARTHRITIS THERAPY

Plaquenil® SULFATE

Brand of hydroxychloroquine sulfate



New Long Term Chemotherapy of RHEUMATOID ARTHRITIS

"Whatever else may be needed from time to time in the management of individual cases, these drugs [Plaquenil and Aralen] should always be given a prolonged trial (at least six months) as the 'mainstay' of therapy."

Bagnall, A. W. (Univ. British Columbia, Vancouver, B.C.): A.M.A. Clinical Meeting (Scientific Section, Exhibit No. 124), Minneapolis, Minnesota, Dec. 2-5, 1958.

"The 4-aminoquinoline drugs (Plaquenil and Aralen) together with supplemental agents administered in nontoxic doses effectively maintained suppression of the disease in 83 per cent of 194 patients followed for 18 months."

Scherbel, A. L.; Harrison, J. W., and Atdjian, Martin: **Cleveland Clin. Quart. *25:95, April, 1958.***

"When used in tolerated dosage and over a sufficient period of time, there appears to be a tremendous therapeutic potential in the antimalarial drugs. . . . Plaquenil in this study did not have as many side effects as Aralen and thus appears to be a more practical compound."

Cramer, Quentin (Kansas City): **Missouri Med. *55:1203, Nov., 1958.***

Plaquenil (brand of hydroxychloroquine) and Aralen (brand of chloroquine), trademarks reg. U.S. Pat. Off.

Plaquenil is the hydroxy derivative of Aralen® and is available as Plaquenil sulfate in tablets of 200 mg. (bottles of 100).

Average Dosage:

INITIAL—400 to 600 mg. (1 tablet 2 or 3 times daily)

MAINTENANCE—200 to 400 mg. (1 tablet once or twice daily)

Write for Plaquenil booklet discussing clinical experience, dosage, tolerance, precautions, etc., in detail.

NO SALT... *but seasoned*

A meal of even the most colorful and the most meticulously prepared food can be dreary without salt. Neocurtasal, for the patient on a low sodium diet, brings back flavor to food and makes eating a pleasure once more. Neocurtasal is also valuable for preventing potassium deficiency (weakness, etc.) in patients on diuretic therapy with chlorothiazide or its derivatives.

Neocurtasal®

An excellent salt replacement for Salt Free (LOW SODIUM) *Diets*

Neocurtasal contains potassium chloride, potassium glutamate, glutamic acid, calcium silicate and potassium iodide (0.01 per cent)

Supplied in 2 oz. shakers and 8 oz. bottles.

Sold Only through Drugstores

Color illustration reproduced with permission of copyright owner. © The Champion Paper and Fibre Company.

Winthrop LABORATORIES
New York 18, N. Y.

Every Virginia Doctor Should Have These Books!

The history of medicine in the Old Commonwealth from Jamestown to the beginning of the present century is a work every doctor should be proud to own. Complete and intensely interesting.

Medicine In Virginia

By WYNDHAM B. BLANTON, M.D.

Published under Auspices of

Medical Society of Virginia

Reduced price to members of the Medical Society of Virginia

3 Volumes for $5.00

(formerly $9.75)

Order through

Medical Society of Virginia

4205 Dover Road

Richmond, Virginia

provides therapeutic levels . . . for 24 hours . . .
with low incidence of sensitivity reactions . . .
WHENEVER SULFAS ARE INDICATED

KYNEX

Sulfamethoxypyridazine Lederle

0.5 Gm. TABLETS/NEW ACETYL PEDIATRIC SUSPENSION

LEDERLE LABORATORIES, a Division of
AMERICAN CYANAMID COMPANY, Pearl River, New York

Complete

Printing and Binding Service

Commercial, Book and Job Work, Catalogues—Publications
Advertising Literature, Booklets—Broadsides
Office and Factory Forms
Loose-Leaf and Manifold Forms—Ledger Leaves and Loose-Leaf Binders
Paper Ruling
Complete Binding Equipment

Complete Service Under One Roof

Acquaint us with your requirements. We serve you efficiently and economically.

Dial MI 3-1881

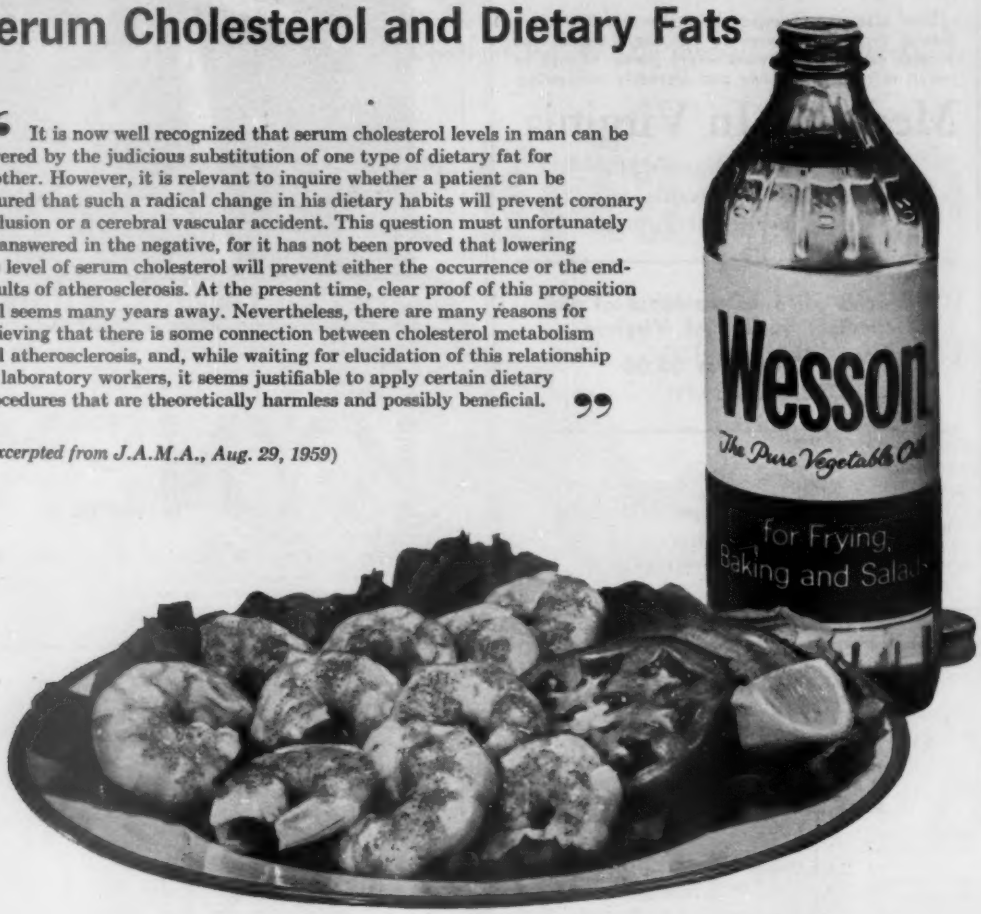
WILLIAMS PRINTING CO.

11-13 15 North Fourteenth Street **RICHMOND, VIRGINIA**

A Significant Statement about Serum Cholesterol and Dietary Fats

"It is now well recognized that serum cholesterol levels in man can be lowered by the judicious substitution of one type of dietary fat for another. However, it is relevant to inquire whether a patient can be assured that such a radical change in his dietary habits will prevent coronary occlusion or a cerebral vascular accident. This question must unfortunately be answered in the negative, for it has not been proved that lowering the level of serum cholesterol will prevent either the occurrence or the end-results of atherosclerosis. At the present time, clear proof of this proposition still seems many years away. Nevertheless, there are many reasons for believing that there is some connection between cholesterol metabolism and atherosclerosis, and, while waiting for elucidation of this relationship by laboratory workers, it seems justifiable to apply certain dietary procedures that are theoretically harmless and possibly beneficial."

(*Excerpted from J.A.M.A., Aug. 29, 1959*)



Where a poly-unsaturated oil is called for in the diet, Wesson satisfies the most exacting requirements (and the most exacting appetites).

To be effective, a diet must be *eaten* by the patient. The majority of housewives prefer Wesson,* particularly by the criteria of odor, flavor (blandness) and lightness of color.

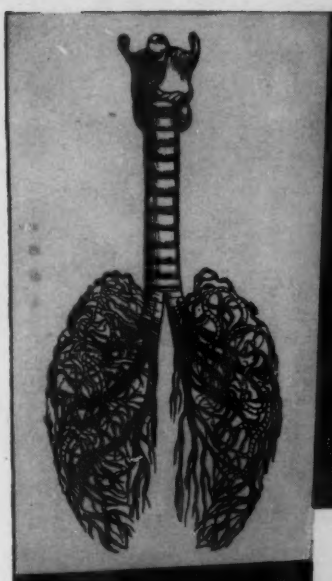
Uniformity you can depend on. Wesson has a *poly*-unsaturated content better than 50%. Only the lightest cottonseed oils of highest iodine number are selected for Wesson, and no significant variations in standards are permitted in the 22 exacting specifications required before bottling.

Each pint contains 437—524 Int. Units of Vitamin E.

Wesson's Important Ingredients:	
Linoleic acid glycerides	50% to 55%
Phytosterol (predominantly beta sitosterol)	0.4% to 0.7%
Total tocopherols	0.09% to 0.12%

Never hydrogenated—completely salt free

*Reconfirmed by recent tests against the next leading brand with brand identifications removed, among a national probability sample.



an added measure
of protection in your
treatment of
upper respiratory disorders

SULTUSSIN®

TABLETS (new!) and LIQUID

In new raspberry flavored tablets and pleasant tasting liquid form.

SULTUSSIN triple sulfonamides add their antibacterial power to your choice of antibiotic to . . . .

- help prevent and clear up secondary infections faster and more effectively
- avert the dangers of rheumatic fever, nephritis, otitis media and other complications

SULTUSSIN simultaneously affords maximum relief from sneezing, stuffed or runny nose, cough, wheezing, malaise, slight fever, and other distressing symptoms of the severe common cold, coughs, influenza, etc.

antibacterial chemoprophylaxis • expectorant
antiallergic • bronchodilator • antispasmodic

	Each tablet provides	Each teaspoonful (5 cc.) provides
Sulfadiazine	0.083 Gm.	0.166 Gm.
Sulfamerazine	0.083 Gm.	0.166 Gm.
Sulfamethazine	0.083 Gm.	0.166 Gm.
Pyrilamine Maleate	3.125 mg.	6.25 mg.
Phenyltoloxamine Dihydrogen Citrate	3.125 mg.	6.25 mg.
Glyceryl Guaiacolate	25.0 mg.	50.0 mg.
Ephedrine Sulfate	2.5 mg.	5.0 mg.

Supplied:
Liquid in 4 ounce and pint bottles.
Tablets, bottles of 50 and 100.

REFER TO PDR
PAGE 825

THE TILDEN COMPANY • NEW LEBANON, N. Y.
Oldest Manufacturing Pharmaceutical House in America • Founded 1824

HELP US KEEP THE THINGS WORTH KEEPING

Here's what peace is all about. A world where busy little girls like this can stand, happily absorbed in painting a bright picture that mother can hang in the kitchen and daddy admire when he gets home from work.

A simple thing, peace. And a precious one. But peace is not easy to *keep*, in this troubled world. Peace costs money.

Money for strength to keep the peace. Money for science and education to help make peace lasting. And money saved by individuals to keep our economy sound.

Every U.S. Savings Bond you buy helps provide money for America's Peace Power—the power that helps us keep the things worth keeping.

Are you buying as many as you *might!*

HELP STRENGTHEN AMERICA'S PEACE POWER

BUY U. S. SAVINGS BONDS

The U.S. Government does not pay for this advertising. The Treasury Department thanks The Advertising Council and this magazine for their patriotic donation.

For the treatment of infant colic SKOPYL quickly and effectively relieves and prevents abdominal pain and distention always identified with infant colic.
Easy Administration: Just one or two drops of SKOPYL under the tongue, 20—30 minutes before each feeding — or 3 drops for an acute attack of colic.
Fast Action: The rapid absorption of SKOPYL into the blood stream via the sublingual or oral route often gives immediate and dramatic relief of acute abdominal pain characteristic of infant colic.
Effective: SKOPYL is more effective because of its selective peripheral action without influence on the central nervous system. Even when there is regurgitation and vomiting, SKOPYL is effective when administered orally or sublingually. During administration of SKOPYL, frequent, loose, and mucoid stools will become firm — often within 24—48 hours.
Action and Safety: The main effect of SKOPYL is peripheral. It has a particularly depressant effect on the tonus and motility of smooth musculature of the gastrointestinal tract. Because of SKOPYL's high degree of selective action and favorable therapeutic index, the recommended small volume dose can generally be given with a minimum incidence of side effects.
Indications: Colic (paroxysmal fussing, infantile dyspepsia, irritable crying), infantile vomiting, infantile diarrhea, pyloric spasm. **Precautions:** Fluid balance should be restored in dehydrated infants or those with oliguria before beginning treatment with SKOPYL. **Available:** 5 cc. dropper bottle.
One drop = 0.6 mg.; 40 drops = 1 cc.

Pharmacia Laboratories Inc., 501 Fifth Avenue, N. Y. 17, N. Y.

wherever there is inflammation, swelling, pain

VARIDASE®
Streptokinase-Streptodornase Lederle

BUCCAL Tablets

conditions for a fast & comfortable comeback

Host reaction to injury or local infection has a catabolic and an anabolic phase. The body responds with inflammation, swelling and pain. In time, the process is reversed. VARIDASE speeds up this normal process of recovery.

By activating fibrinolytic factors VARIDASE shortens the *undesirable phase,* limits necrotic changes due to inflammatory infiltration, and initiates the constructive phase to speed total remission. Medication and body defenses can readily penetrate to the affected site; local tissue is prepared for faster regrowth of cells. In infection, the fibrin wall is breached while the infection-limiting effect is retained. In acute cases, response is often dramatic. In chronic cases, VARIDASE Buccal Tablets can stimulate a successful response to primary therapy previously considered inadequate or failing.

for routine use in injury and infection
...new simple buccal route

VARIDASE Buccal Tablets should be retained in the buccal pouch until dissolved. For maximum absorption, patient should delay swallowing saliva.

Dosage: One tablet four times daily usually for five days. When infection is present, VARIDASE Buccal Tablets should be given in conjunction with ACHROMYCIN® V Tetracycline with Citric Acid.

Each VARIDASE Buccal Tablet contains: 10,000 Units Streptokinase and 2,500 Units Streptodornase.

Supplied: boxes of 24 and 100 tablets.

1. Innerfield, I.: Clinical report cited with permission
2. Clinical report cited with permission

Lederle LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY
Pearl River, New York

FORCE INJURY
severe bruises
... swelling
... cleared
by fifth day[2]

VARICOSE
ULCER
15 years duration
... resolved with
VARIDASE[1]

INFLAMMATORY
DERMATOSIS
rapidly spreading
rhus dermatitis
healed within
a week[1]

INFECTED
LACERATION
marked reversal
in 3 days...
returned
to school...
closure advanced[1]

THROMBOPHLEBITIS
back on his feet
in a week after
recurrent episode[1]

REFRACTORY
CELLULITIS
normal routine
resumed after 4 days
of VARIDASE[1]

immortals of chinese mythology:

Chung-li Chu'an

This powerful magician revived the souls of the dead with a wave of his fan and gained a lasting place in Taoist legend

...this pioneer corticosteroid has proved invaluable in treating *millions* of living patients

METICORTEN

METICORTEN,® brand of prednisone, 5 mg. tablets.

SCHERING CORPORATION • BLOOMFIELD, NEW JERSEY

You will soon receive in your mail a full-color, handmade, three-dimensional figure of this Chinese Immortal, mounted and suitable for framing.

5-318

Schering

provides therapeutic levels . . . for 24 hours . . .
with low incidence of sensitivity reactions . . .
WHENEVER SULFAS ARE INDICATED

KYNEX

Sulfamethoxypyridazine Lederle
0.5 Gm. TABLETS/NEW ACETYL PEDIATRIC SUSPENSION
LEDERLE LABORATORIES, a Division of
AMERICAN CYANAMID COMPANY, Pearl River, New York

Marvin Pierce Rucker, M.D.

His Selected Writings

Here, under one cover, are the pen profiles and floral eponyms which have become the hallmark of this beloved physician.

Beautifully bound, this volume will be a welcome addition to any library—the perfect gift for that special occasion.

Order your copies at $7.50 each from the Johnston-Willis Hospitality Shop, Richmond, Virginia.

for the tense and nervous patient

relief comes fast and comfortably

–does not produce autonomic side reactions
–does not impair mental efficiency, motor control, or normal behavior.

Usual Dosage: One or two 400 mg. tablets t.i.d.

Supplied: 400 mg. scored tablets, 200 mg. sugar-coated tablets or as MEPROTABS*–400 mg. *unmarked,* coated tablets.

Miltown®

meprobamate (Wallace)

WALLACE LABORATORIES / *New Brunswick, N. J.*

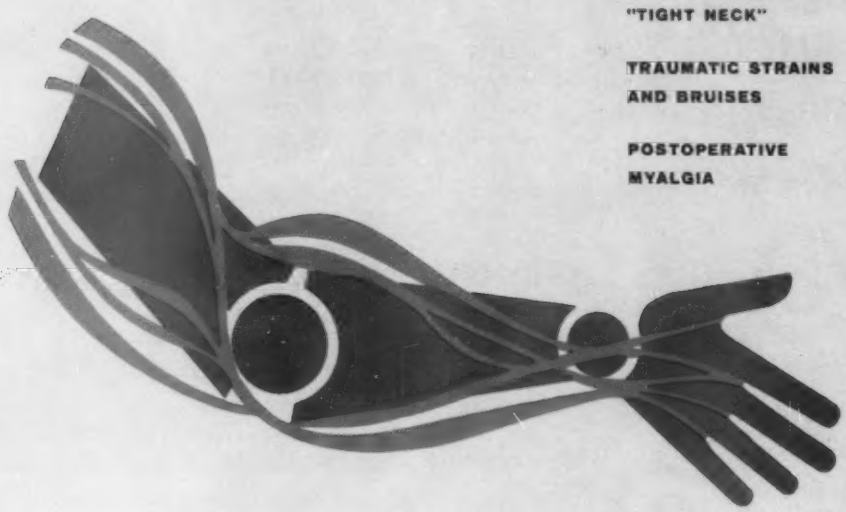
CM-9470

NOW

...a new way to relieve pain and stiffness in muscles and joints

indicated in:

- MUSCLE STIFFNESS
- LUMBOSACRAL STRAIN
- SACROILIAC STRAIN
- WHIPLASH INJURY
- BURSITIS
- SPRAINS
- TENOSYNOVITIS
- FIBROSITIS
- FIBROMYOSITIS
- LOW BACK PAIN
- DISC SYNDROME
- SPRAINED BACK
- "TIGHT NECK"
- TRAUMATIC STRAINS AND BRUISES
- POSTOPERATIVE MYALGIA



■ Exhibits unusual analgesic properties, different from those of any other drug ■ Specific and superior in relief of SOMAtic pain ■ Modifies central perception of pain without abolishing natural defense reflexes ■ Relaxes abnormal tension of skeletal muscle

SOMA™

N-isopropyl-2-methyl-2-propyl-1, 3-propanediol dicarbamate

■ More specific than salicylates ■ Less drastic than steroids

■ More effective than muscle relaxants

SOMA has an unique analgesic action. It apparently modifies central pain perception without abolishing peripheral pain reflexes. SOMA is particularly effective in relieving joint pain. Patients say that they feel better and sleep better with SOMA than with previously used analgesic, sedative or relaxant drugs.
SOMA also relaxes muscle hypertonia, with its stresses on related joints, ligaments and skeletal structures.

ACTS FAST. Pain-relieving and relaxant effects start in 30 minutes and last 6 hours.

NOTABLY SAFE. Toxicity of SOMA is extremely low. No effects on liver, endocrine system, blood pressure, blood picture or urine have been reported. Some patients may become sleepy, particularly on high dosage.

EASY TO USE. Usual adult dose is one 350 mg. tablet 3 times daily and at bedtime.

SUPPLIED: Bottles of 50 white coated 350 mg. tablets.

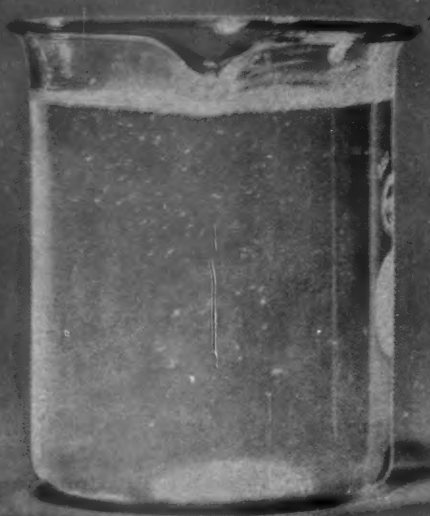
Literature and samples on request.

WALLACE LABORATORIES, NEW BRUNSWICK, N. J.

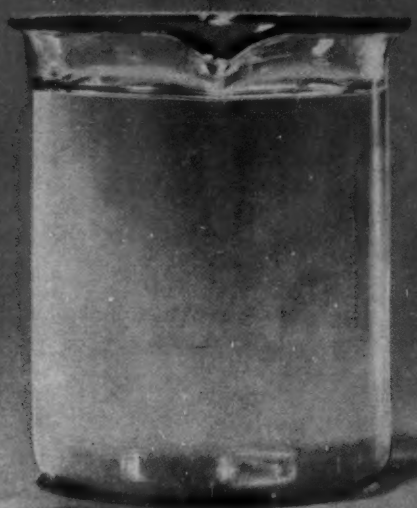
avoid the risk of insoluble, irritating aspirin particles

Chief among the drawbacks to aspirin usage is gastric intolerance. This ranges from mild upset and "heartburn" to severe hemorrhagic gastritis.[1-14] Studies performed in conjunction with gastrectomy[4, 5] and gastroscopy[2] have shown insoluble aspirin particles firmly adherent to the gastric mucosa and imbedded between rugae. Reactions varying from mild hyperemia to erosive gastritis have been reported to occur in the areas immediately surrounding these adherent particles.[2, 4, 5] This is reported to be particularly true in patients with peptic ulcer.[4]

CALURIN is the freely soluble, stable calcium aspirin complex. Its high solubility forestalls gastric irritation or damage



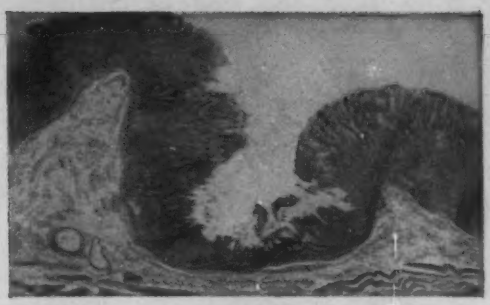
Regular aspirin crystals 24 hours after being mixed into water.



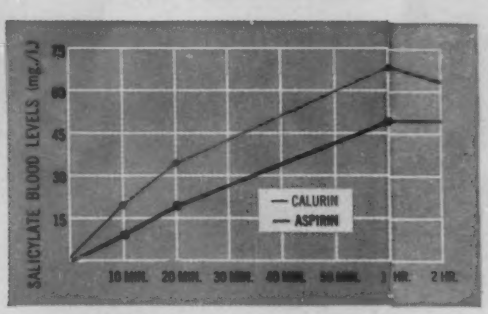
Calurin crystals in solution one minute after being mixed into water.

CALURIN*

STABLE SOLUBLE CALCIUM-ACETYLSALICYLATE-CARBAMIDE



Particle-induced ulceration — section through lesion found in gastrectomy specimen. An aspirin particle was found firmly imbedded in this undermined erosion. Such lesions may be associated with the relative insolubility of aspirin, which remains in particulate form after dispersion in gastric contents.



Calurin, being freely soluble, is promptly available for absorption into the systemic circulation. Salicylate blood levels in 12 subjects receiving both Calurin and plain aspirin were found to rise more than twice as high within ten minutes following Calurin. Also, these levels persisted higher for at least two hours.[11]

CALURIN is the aspirin of choice, especially when high-dosage, long-term therapy is indicated:

1. High solubility forestalls gastric irritation or damage. This advantage is of special importance in arthritis and other conditions requiring high-dosage, long-term therapy.
2. Produces high salicylate blood levels rapidly for prompt analgesic, anti-pyretic, anti-arthritic effect.
3. Sodium-free — for safer long-term therapy.
4. Flavored: can be chewed or dissolved in the mouth without water if desired — an advantage for patients requiring aspirin administration during the night and for pediatric patients.

Dosage: Each tablet of Calurin is equivalent to 300 mg. (5 gr.) of acetylsalicylic acid. For relief of pain and fever in adult patients, the usual dose of Calurin is 1 to 2 tablets every 4 hours, as needed; in arthritic states, 2 or 3 tablets 3 or 4 times daily; in rheumatic fever, 3 to 5 tablets 4 or 5 times daily. For children over 6 years, the usual dose is 1 tablet every 4 hours; for children 3 to 6 years, ½ tablet every 4 hours, as required. Not recommended for children under 3.

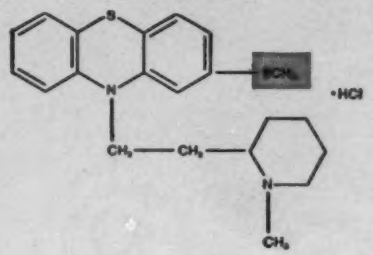
REFERENCES: 1. Waterson, A. P.: Aspirin and gastric haemorrhage, Brit. M. J. 2:1531, 1955. 2. Douthwaite, A. H., and Lintott, G. A. M.: Gastroscopic observation of the effect of aspirin and certain other substances on the stomach, Lancet 2:1222, 1938. 3. Editorial Comments: The effect of acetylsalicylic acid (aspirin) on the gastric mucosa, Canad. M. A. J. 80:47, 1959. 4. Muir, A., and Cossar, I. A.: Aspirin and ulcer, Brit. M. J. 2:7, 1955. 5. Muir, A., and Cossar, I. A.: Aspirin and gastric haemorrhage, Lancet 1:539, 1959. 6. Schneider, E. M.: Aspirin as a gastric irritant, Gastroenterology 33:616, 1957. 7. Bayles, T. B., and Tenckhoff, H.: Salicylate therapy in rheumatic diseases, Scientific Exhibit, Ann. Mtg. A. M. A., San Francisco, Calif., June, 1958. 8. Batterman, R. C.: Comparison of buffered and unbuffered acetylsalicylic acid, New Eng. J. M. 258:213, 1958. 9. Cronk, G. A.: Laboratory and clinical studies with buffered and nonbuffered acetylsalicylic acid, New Eng. J. M. 258:219, 1958. 10. Editorial: Aspirin plain and buffered, Brit. M. J. 1:349, 1959. 11. Smith, P. K.: Plasma concentration of salicylate after the administration of acetylsalicylic acid or calcium acetylsalicylate to human subjects, Report submitted to Smith-Dorsey from Dept. of Pharmacology, Geo. Washington Univ. School of Medicine, Washington, D. C., Sept. 5, 1958.

*TRADEMARK

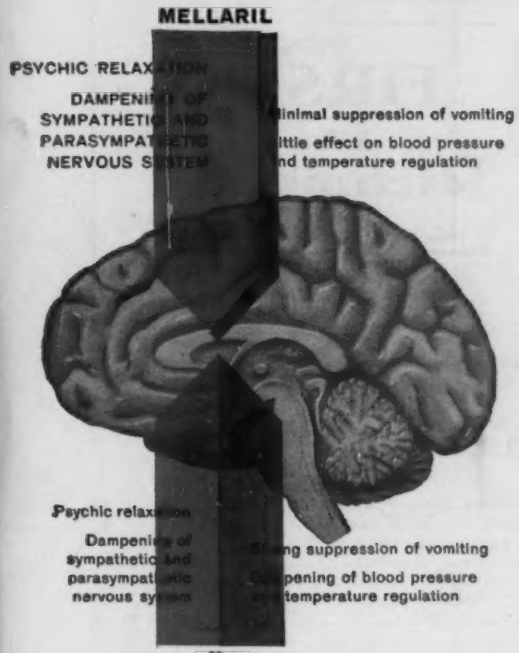
SMITH-DORSEY • a division of The Wander Company • Lincoln, Nebraska

NOW . . . SAFER, EFFECTIVE TRANQUILIZER THERAPY
tranquilization
anti-emetic
greater specificity
of tranquilizing action
—divorced from such
"diffuse" effects as
anti-emetic action
—explains why
Mellaril
THIORIDAZINE HCl
is virtually free of such toxic effects as • jaundice • Parkinsonism • blood dyscrasia
Thioridazine [MELLARIL] is as effective as the best available phenothiazine but with appreciably less toxic effects than those demonstrated with other phenothiazines. This drug appears to represent a major addition to the safe and effective treatment of a wide range of psychological disturbances seen daily in the clinics or by the general practitioner.

a new advance in tranquilization:
greater specificity of tranquilizing action results in fewer side effects



The presence of a thiomethyl radical (S-CH₃) is unique in Mellaril and could be responsible for the relative absence of side effects and greater specificity of psychotherapeutic action. This is shown clinically by:


MELLARIL
PSYCHIC RELAXATION
DAMPENING OF SYMPATHETIC AND PARASYMPATHETIC NERVOUS SYSTEM
Minimal suppression of vomiting
Little effect on blood pressure and temperature regulation
Psychic relaxation
Dampening of sympathetic and parasympathetic nervous system
Suppression of vomiting
Dampening of blood pressure and temperature regulation
other phenothiazine-type tranquilizers

1 A specificity of action on certain brain sites in contrast to the more generalized or "diffuse" action of other phenothiazines. This is evidenced by a lack of appreciable anti-emetic effect.

2 Less "spill-over" action to other brain areas — hence, absence of undue sedation, drowsiness or autonomic nervous system disturbances.

3 A notable absence of extrapyramidal stimulation.

4 Lack of impairment of patient's normal drive and energy.

5 Virtual freedom from such toxic effects as jaundice, photosensitivity, skin eruptions, blood forming disorders.

INDICATION	USUAL STARTING DOSE	TOTAL DAILY DOSAGE RANGE
ADULTS: Mental and Emotional Disturbances:		
MILD—where anxiety, apprehension and tension are present	10 mg. t.i.d.	20-60 mg.
MODERATE—where agitation exists in psychoneuroses, alcoholism, intractable pain, senility, etc.	25 mg. t.i.d.	50-200 mg.
SEVERE—in agitated psychotic states as schizophrenia, manic depressive, toxic psychoses, etc.:		
Ambulatory	100 mg. t.i.d.	200-400 mg.
Hospitalized	100 mg. t.i.d.	200-800 mg.
CHILDREN: BEHAVIOR PROBLEMS IN CHILDREN	10 mg. t.i.d.	20-40 mg.

MELLARIL Tablets, 10 mg., 25 mg., 100 mg.

*Ostfeld, A. M.: Scientific Exhibit, American Academy of General Practice, San Francisco, April 6-9, 1959

SANDOZ

provides therapeutic levels . . . for 24 hours . . .
with low incidence of sensitivity reactions . . .
WHENEVER SULFAS ARE INDICATED

KYNEX®

Sulfamethoxypyridazine Lederle

0.5 Gm. TABLETS/NEW ACETYL PEDIATRIC SUSPENSION

LEDERLE LABORATORIES, a Division of
AMERICAN CYANAMID COMPANY, Pearl River, New York

FIRST
in
Richmond

MEMBER FEDERAL DEPOSIT INSURANCE CORP.

INDEX TO ADVERTISERS

Abbott 37, 112
American Health 91
Ames Company, Inc. ..... Inside Back Cover
Appalachian Hall 61
Ayerst 31
Brayten Pharmaceutical Company 111
Bristol 45-50
Burroughs Wellcome Co. 35-36
Canada Dry 76
Davies, Rose & Company, Ltd. 92
Drug Specialties 17
Dyer, David A. 24
Eli Lilly & Company 58
Endo 44
First & Merchants 110
Geigy 38
Gill Memorial Eye, Ear and Throat Hospital, Inc. 69
Glenbrook 32
Haskell & Co., Charles C. 27
Jefferson, A. G. 76
Johnston-Willis Hospital 63
Jones & Vaughan 7
Lederle 8-9, 29, 39, 52-53, 56, 77-84, 86-87, 88, 90, 95, 100-101, 102, 110
Lorillard 34
Medicine in Virginia 63, 95
Merck Sharp & Dohme 5, 20-21, 89
Parke, Davis & Company ..... Second Cover-3, 75
People's Service Drug Stores 10
Pfizer 19, 73
Pharmacia Laboratories, Inc. 99
Physicians Products Co. 51
Plyler's Nursing Home, Mrs. 62
Raleigh, Hotel 88
Richmond Eye Hospital—Richmond Ear, Nose and Throat Hospital 64
Richmond Hotels, Inc. 76
Riverside Convalescent Home 64
Robins, A. H., Co., Inc. 22-23, 33, 74, 85
Roerig 54-55, 72
Rucker, Dr. Marvin Pierce 102
Saint Albans 70
Sandoz 108-109
Schering 57, 71, 92, 102
Searle 59
Smith-Dorsey 18, 30, 41, 106-107
Smith Kline & French Laboratories ..... Back Cover
St. Elizabeth's Hospital 61
St. Luke's Hospital 62
St. Paul-Western Insurance Companies 88
State Board of Medical Examiners 63
Stuart Circle Hospital 69
Terrace Hill Nursing Home 63
Tilden Company 97
Tucker Hospital, Inc. 70
United States Brewers Foundation 40
Upjohn 42-43
U. S. Treasury 98
U. S. Vitamin & Pharmaceutical Corp. 25-26
Valentine Company, Inc. 71
Wallace Laboratories 103-105
Wesson Oil 96
White Cross Hospital 60
Williams Printing Company 95
Winthrop Laboratories 6, 11-16, 28, 65-68, 93-94

Results with "... antacid therapy with DAA are essentially the same as ... with potent anticholinergic drugs."

Alglyn®

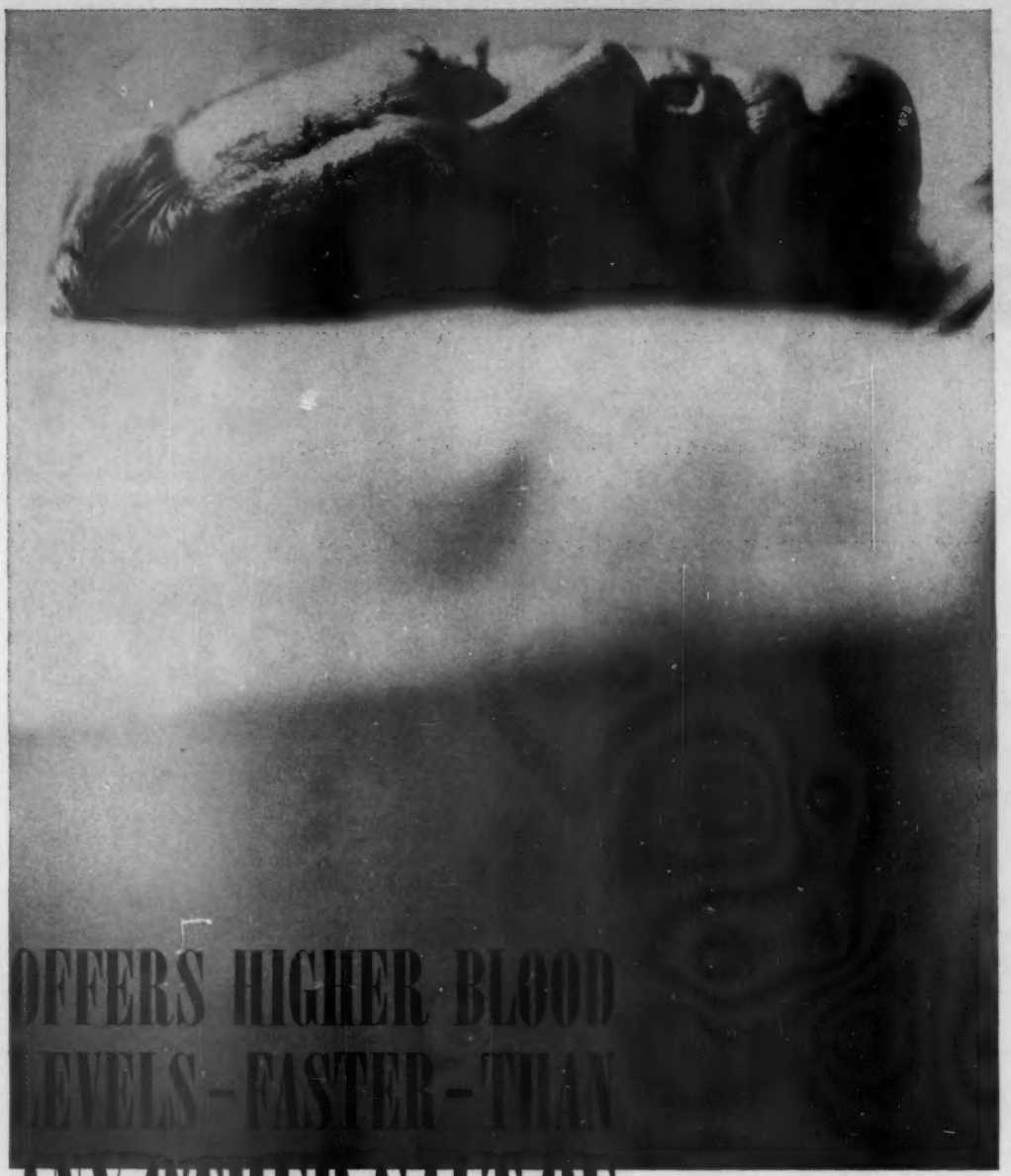
Dihydroxy aluminum aminoacetate, N.N.R.

In recent years, a number of new synthetic anticholinergic drugs with numerous and varying side effects have been investigated for treatment of peptic ulcer. However, a double-blind study conducted recently by Cayer et al suggests that the use of such anticholinergic drugs is seldom necessary. The authors concluded that "The percentage of 'good to excellent' results obtained in patients on continuous long-term antacid therapy with DAA (74%) is essentially the same as that previously noted in ulcer patients treated under similar conditions with potent anticholinergic drugs alone."

The authors' choice of dihydroxy aluminum aminoacetate (DAA) was based on the fact that "the tablet form of DAA (is) more active than a variety of straight aluminum hydroxide magmas." They further commented that "Because of the convenience of tablet medication as compared with the liquid gel—a convenience which in the use of other tablets is gained at the expense of therapeutic effectiveness—dihydroxy aluminum aminoacetate was used exclusively."

ALGLYN (dihydroxy aluminum aminoacetate) Tablets are supplied in bottles of 100 tablets (0.5 Gm. per tablet).

BRAYTEN PHARMACEUTICAL COMPANY • *Chattanooga 9, Tennessee*



OFFERS HIGHER BLOOD LEVELS—FASTER—THAN

ANY OTHER SALT OF ORAL PENICILLIN: COMPOCILLIN®-VK

Potassium Penicillin V

® FILMTAB — FILM-SEALED TABLETS, ABBOTT, U.S. PAT. NO. 2931095

Supplied: Compocillin-VK Filmtabs, 125 mg. (200,000 units), bottles of 50 and 100; 250 mg. (400,000 units), bottles of 25 and 100. Compocillin-VK Granules for Oral Solution come in 40-cc. and 80-cc. bottles. When reconstituted, each 5-cc. teaspoonful represents 125 mg. (200,000 units) of potassium penicillin V.

in tiny, easy-to-swallow Filmtabs® in tasty, cherry-flavored Oral Solution

AN AMES CLINIQUICK®

CLINICAL BRIEFS FOR MODERN PRACTICE

why should the urine be tested for sugar in acute cholecystitis?

The high incidence of pancreatic disease associated with pathologic conditions of the biliary tract indicates their close relationship. The appearance of glycosuria in acute cholecystitis points to involvement of the pancreas in the inflammatory process.

Source: Refresher Article: Biliary Tract Diseases, M. Times *85*:1081, 1957.

to help forewarn of pancreatic involvement...
and for reliable urine-sugar testing at any time

color-calibrated CLINITEST®
Reagent Tablets

"...the most satisfactory method for home and office routine testing...."
GP *16*:121 (Aug.) 1957.

- STANDARDIZED READINGS...familiar blue-to-orange spectrum
- STANDARDIZED "PLUS" SYSTEM...covers entire clinical range
- STANDARDIZED SENSITIVITY...avoids insignificant trace reactions

consistently reliable results
day after day...:
test after test

AMES
COMPANY, INC
Elkhart • Indiana
Toronto • Canada

"Doctor, I get so mad at everyone when I diet."

'Dexamyl' *Spansule* capsules provide single-dose daylong appetite control and an often remarkable mood improvement. A feeling of serene optimism frequently replaces the tension and irritability so characteristic of the dieting patient.

When your overweight patient is listless and lethargic, 'Dexedrine' *Spansule* capsules will, in addition to curbing appetite, provide gentle stimulation.

DEXAMYL* for most overweight patients
('Dexedrine' plus amobarbital)

Tablets • Elixir • Spansule* sustained release capsules

In listless and lethargic overweight patients—**DEXEDRINE†**

SMITH KLINE & FRENCH LABORATORIES

*T.M. Reg. U.S. Pat. Off. †T.M. Reg. U.S. Pat. Off. for dextro-amphetamine sulfate, S.K.F.